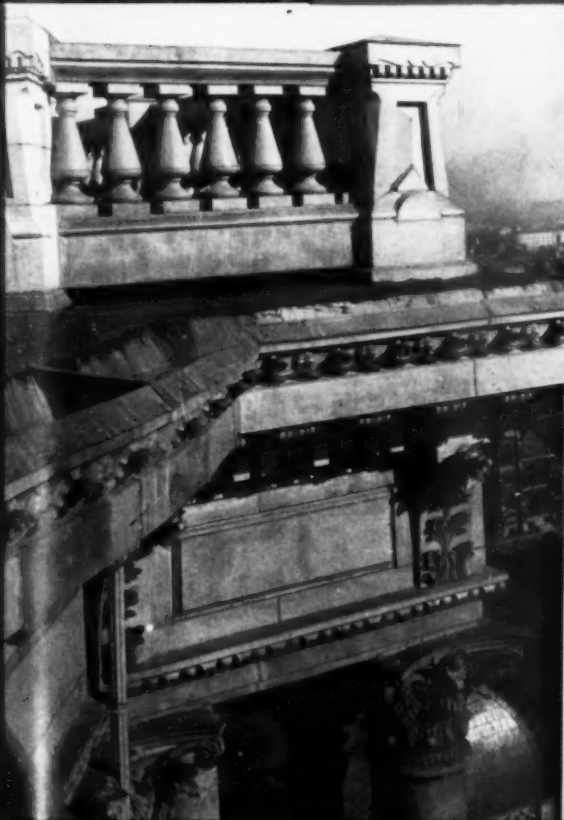


AMERICAN ARTISAN

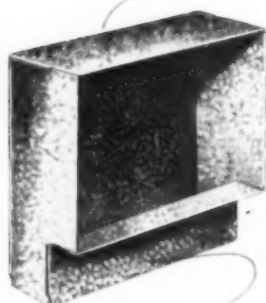
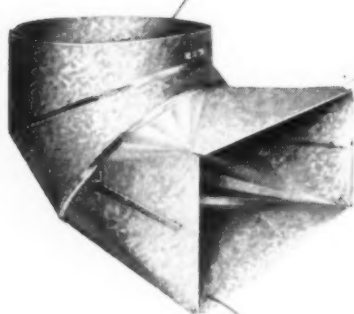
RESIDENTIAL AIR CONDITIONING
WARM AIR HEATING--SHEET METAL CONTRACTING



APRIL, 1947

Let's De-Bunk Panel Heating	- - - - -	Page 57
Test Results—Panel-Convection System	- - - - -	Page 74
Sheet Delivery in Rolls	- - - - -	Page 86

**Complete
your profit
line . . .**



Specify
C&L

LAMNECK

TRADE MARK

The C&L Lamneck line is COMPLETE . . . enabling you to specify genuine C&L Lamneck furnace pipe and fittings for every furnace pipe installation or repair. Sound engineering and high quality standards insure dependable, lasting performance. Factory prefabrication guarantees accurate fit and reduces installation time.

See your jobber today for C&L Lamneck . . . the COMPLETE LINE of furnace pipe and fittings. Write now for your copy of the new C&L Lamneck catalog.

In order to meet extremely heavy demands, C&L Lamneck furnace pipe and fittings are also being made of aluminum. The same high standards of quality for which C&L Lamneck is famous will be maintained in the new aluminum fittings.

Other C&L products: C&L Blow Torches, Fire Pots • C&L Hoffman Water Heaters • Monarch Builders Finish Hardware, Panic Exit Devices • Buckeye Grain Bins, Corn Cribbs • Silver Shield Silos



Lamneck

**FURNACE PIPE
AND FITTINGS**

CLAYTON & LAMBERT, MFG. CO.

Sales office: 1760 DIXIE HIGHWAY, LOUISVILLE 10, KY. • Factory: MIDDLETOWN, OHIO

Tested Dependability

● Ask any user of usAIRco air handling equipment why he likes it. Chances are he'll mention *dependability*—the ability of the equipment to stay on the job year after year, meeting air handling requirements without interruption of service, with a minimum of maintenance. That dependability is the result of two decades of specialization in the correct engineering and application of air handling equipment.

All usAIRco "tools for the air conditioning industry," such as *blowers, fans, heating and cooling coils, unit heaters, air washers, grilles and packaged cooling units*, meet rigid tests for dependable operation on the job.

The modern facilities of a new manufacturing plant, plus years of engineering experience gained through pioneering improvements in air handling

equipment, make usAIRco first choice wherever dependable performance is required. It will pay you to see your usAIRco field representative on the next job calling for air handling or air conditioning equipment, or write directly to factory.

United States Air Conditioning Corporation

MINNEAPOLIS 14, MINNESOTA



Engineers and Manufacturers of a Complete Line
of Air Handling and Air Conditioning Equipment



AMERICAN

with which are merged
FURNACES
SHEET METALS **Warm-Air Heating**

Covering All Activities in Residential Air Conditioning and Small Commercial Cooling, Warm Air Heating, Sheet Metal Contracting and Fabricating

ARTISAN

In This Issue

J. D. Wilder, Editor

J. J. McCullough, Associate Editor A. A. Kennedy, Assistant Editor

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MUCH SPACE has been given in this issue to reports of the conventions of state associations and the activities of local organizations.

The overall impression carried away from these meetings is that associations are awake to the seriousness of business problems today and trying, with all their resources, to do something to help.

Evidence seems to be piling up that public interest in "radiant or panel heating is increasing. This in spite of the fact that almost no homeowner has ever seen a panel system, let alone ever spent any time in a panel heated house sampling its comfort characteristics.

Our warm air heating industry is not asleep—we are, instead, just reaching the point where we are ready to announce a truly phenomenal system of heating—Panel Heating—PLUS. A system—not just heat—but a system with all the advantages of warm floors PLUS humidification; PLUS ventilation (so lacking in hot water panels); PLUS air cleaning; PLUS all the ADDITIONAL advantages of convection heating which our industry's twenty-five years of research has established.

In this connection the editors ask readers to study the editorial on page 57 and the report of a combination panel-convection system on page 74.

Founded 1880

APRIL, 1947

Volume 116, No. 4

The Reason

Syncromatic
COUNTER FLOW

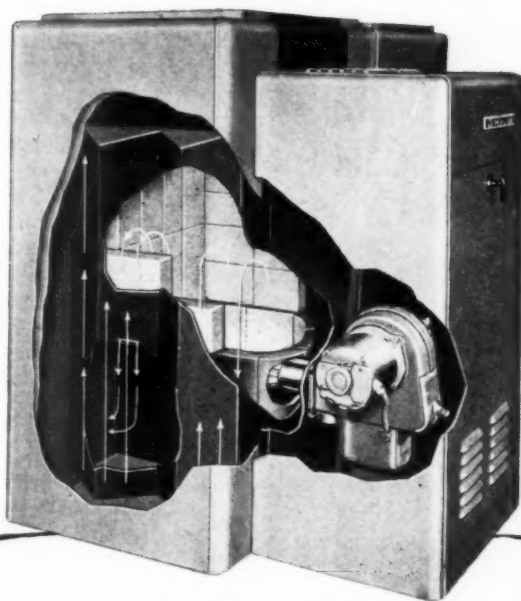
SYNCROMATIC

WARM-AIR FURNACES FOR COAL
OIL AND GAS *Can't be Equaled*

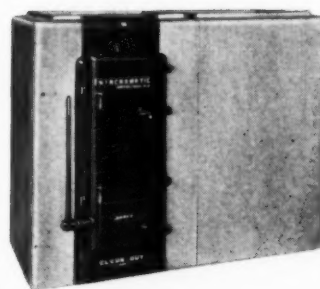


GAS-FIRED

*Beauty... Simplicity
Economy...
Efficiency*



OIL-FIRED SECTION
Showing COUNTER FLOW Principle



COAL-FIRED

*An Engineering Design
Only Syncromatic
Can Offer*

Syncromatic Corporation
WATERTOWN WISCONSIN



*Note How Simple it is to Set
the Range Adjustment on a
Mercoide Control*

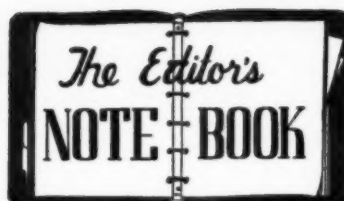
One outstanding feature about Mercoide Controls is the ease in making operating adjustments.

You simply use your fingers—no tools whatever are needed. On either the Type M-41 Furnace Limit Control or the Type M-43 Furnace Fan Control, the adjustment mechanism is alike. You press the small knob in center of the cover and turn it left for the desired low setting, then pull the knob and turn it to the right for the desired high setting as indicated in plain view on the calibrated dial. That's all there is to it—done in a matter of seconds.

This is only one of the many other features you'll like about Mercoide Controls.

We will be glad to send you a Mercoide catalog upon request.

THE MERCOIDE CORPORATION
4201 BELMONT AVE., CHICAGO 41, ILL.



ASHVE to Study Panel Heating

The news item says—"Leaders of the heating, ventilating, and air conditioning industry recently voted to have the ASHVE undertake the correlation and co-ordination of research of radiant panel heating."

Without trying to be disrespectful—we can't help but remember the remark of one well known professor from our own industry who after listening to the ASHVE's panel heating forum in Cleveland last January said—"There was more nonsense, more misinterpretation, more false statements made in that forum than I ever heard before, or expect to; either these men just don't know or the subject is too complicated for the average man to understand."

Evidently co-ordination is needed.

Cure For the Jitters

A Newark physician announces a drugless cure for the jitters. After a hectic day, he tosses some clothes into his Bendix washer and then sits down and—through the peep hole—watches the rhythmic tumbling of the clothes in the water. He claims his jitters vanish and he is soon ready for sound sleep.

Fire Safety Rules

Read these rules carefully, they may save your life and the lives of others.

1. Upon arriving at your hotel room, investigate all possible means of emergency exit.
2. Read carefully any instructions to guests posted in room.
3. Be as careful in a hotel as you would be in your own home. Do not smoke in bed.
4. If you detect smoke or evidence of fire give immediate information to the management.
5. Close transom door at once.
6. Take time to plan your exit.
7. Feel the door before you open it. If it does not feel hot, open it slightly. Hold head away, brace door with foot. Put hand across opening to test heat of air.
8. If hallway appears safe, use the already planned exit.
9. If hallway is not safe, stop up any openings or cracks by which smoke may enter, using wet towels, sheets, blankets, mattresses, etc.
10. Open window slightly and stay near it. Keep calm, avoid hysteria. Do not jump out. Many lives have been saved by closing doors and transoms, blocking all openings for hot air and gases from hallway.

These recommendations are based on an official engineers' studies of hotel fires. The same rules would apply in any large apartment or office building.

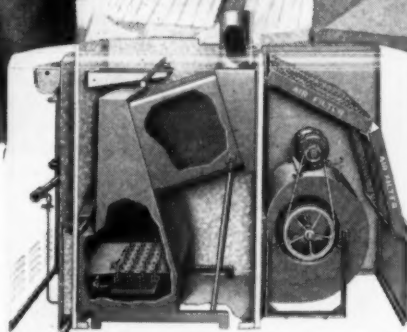
Sell fully automatic indoor comfort



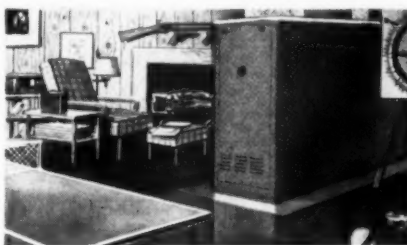
MEYER GAS-FIRED AIR CONDITIONER

You'll be proud to show this superb modern Meyer Gas-Fired Air Conditioner . . . and even more pleased with the immediate acceptance it wins from your prospects. It leads in efficiency and economy. Designed for easy installation and freedom from servicing. This Meyer Gas-Fired Air Conditioner provides the completely automatic heating, circulation, cleansing, and humidification expected in modern heating. There is a complete Meyer line of gas-fired heating equipment, including hi-boy and gravity models. The name WEIR-MEYER is your assurance of dependable, life-time heating equipment, built with features to help you sell and backed by sound, aggressive advertising and merchandising. Write for franchise details.

THE MEYER FURNACE COMPANY,
Manufacturers of steel furnaces and air conditioners for GAS — OIL — COAL. Offices: PEORIA 2, ILL., Factories: PEORIA and PERU, ILL.



Cutaway view above shows mechanical construction of Meyer "F" series Gas-Fired Air Conditioner. It's easily installed, free from service worries. Smartly styled for modern homes.



WEIR-MEYER means modern heat



Gas-fired Hi-boy



Gas-fired Air Conditioner



Gas-fired Gravity



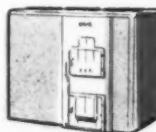
Oil-fired Hi-boy



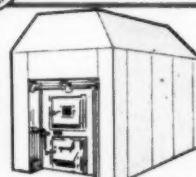
Oil-fired Air Conditioner



Weir Steel furnace



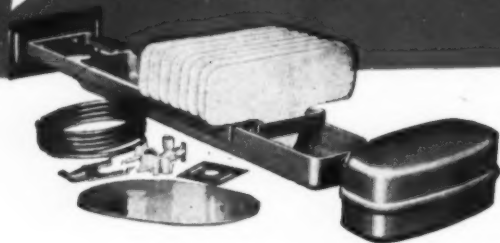
Weir Coal-fired Air Conditioner



Industrial & commercial heating equipment

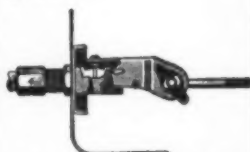
Check these advantages
in the
New Viking Humidifier

VIKING "TOP SEAT" FLOAT VALVE
COPPER FLOAT TANK



For Dependable Humidification

Positive Action



Throttle type action maintains the proper water level at all times...no complicated high and low level actuating points.



For occasional servicing or cleaning the brass wing nut can be loosened and the whole assembly exposed.



Disengage the brass cotter key and the complete float assembly can be removed for inspection or cleaning.

Here is the humidifier you've been waiting for. Simple and easy to install and designed to operate for years with little or no attention.

Exhaustive study and research under actual operating conditions has dictated the need for a simple, easy to clean valve and an acid resisting water supply tank. Viking has the solution.

THE VALVE

Made entirely of brass and located above the water level in the supply tank. Simple rocker action...no springs no sliding parts.

THE TANK

Deep drawn from 24 oz. copper in a single piece...no seams...no welds. Located outside the bonnet or plenum...readily accessible for occasional inspection or cleaning.

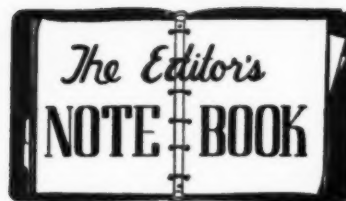
WRITE TODAY

...get complete information and specifications on a dependable humidifier.

Viking



AIR CONDITIONING CORP. 5600 WALWORTH AVE.
CLEVELAND 2, OHIO



Want to Write to an Irishman?

From William J. Stewart, 340 Newtonards Road, Belfast, North Ireland, comes a letter saying—"I am doing pattern drafting on air ducts for ventilation and dust extraction in a large engineering works in Belfast. I would like to make contact with American sheet metal workers who are also interested in pattern work so that we may exchange drawings and views by correspondence. I think the American method of pattern drafting differs from the methods used here and I would like to correspond with someone about our methods. I have had a full technical experience, gaining certificates in each of my classes and in my final year I gained the London City Guild certificate which is reckoned in this country as the highest award that can be attained in sheet metal work."

If any readers wish to correspond with this young man, the exchange might prove extremely interesting.

More Useless Research

It's not quite "planned economy" yet—but Question No. 7 (c7) of the "Peanut Utilization Inquiry" sent out by the Dept. of Agriculture asks the farmer to tell how many peanuts are eaten by persons on his farm during the year! Other questionnaires ask farmers how much manure they have in their barns, how many turkeys died of exposure last year!

Practicing What You Preach

There's an astute gentleman with an inquiring turn of mind whose research has turned up some facts and figures that have astonished Washington observers both in and out of labor. As, for instance:

Organized labor—quite a business in itself—has some 60,000 locals which employ more than 110,000 persons.

Of those 110,000 workers, clerical and otherwise, employed by the unions, less than 20,000 are themselves members of unions—office workers' unions and the like.

The unions pay their help, an average of \$30 a week—or "approximately \$2,000 a year less than the amount which labor's own economists stated . . . is necessary to keep body and soul together."

Of some 600 labor papers published, only seven operate under a union contract.

Why, this inquiring gentleman is asking to some people's discomfiture, don't the unions raise their workers' pay 25 per cent, as they demand of industry? Why don't the unions set up health and welfare funds for their own employees?

In brief, he is asking, why don't some labor leaders "practice what they preach?"

WHITE-RODGERS CONTROLS ARE IDEAL FOR

SPEEDING SERVICE WORK

The ease of installation and adjustment of White-Rodgers controls saves high-priced, hard-to-get labor. This speeds service work, helps you to earn better profits.

Their wide range, and their readily adjustable differentials, permit you to handle a wider variety of replacements with a smaller stock.


Replacing controls with White-Rodgers is made easy through simple diagrams and instructions. Ask to have your name put on the list to receive White-Rodgers Service bulletins.

Specification of White-Rodgers controls by more and more leading manufacturers of warm-air heating equipment is proof that White-Rodgers is "going places." Go with us.

No automatic warm-air heating installation can be any better than the controls that make it work. That's why you'll find White-Rodgers controls the perfect answer to your heating installation and service requirements.



WHITE-RODGERS
Controls
FOR REFRIGERATION
HEATING AND
AIR CONDITIONING



**FOR
HEAVY LOADS**

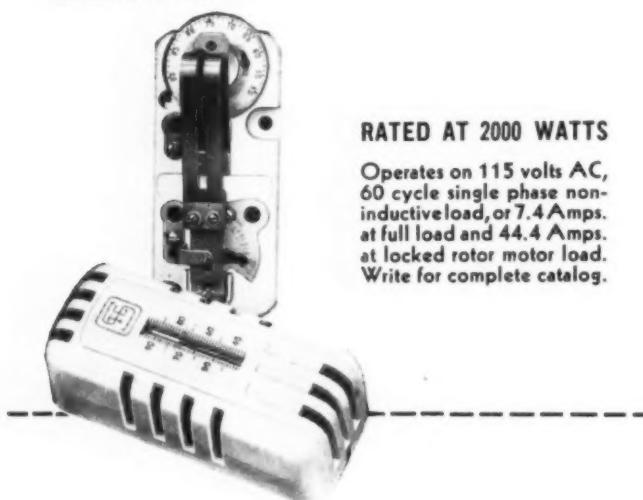
**SAMPSEL
heavy duty
LINE
VOLTAGE
THERMOSTAT**



(No. T2266)

DEPENDABLE PERFORMANCE

Here's simple, easily-installed, and trouble-free thermostatic control for electric heaters and furnaces — or similar uses where heavier electrical rating is required. Operating range 50° — 90°F, with 2° normal differential.



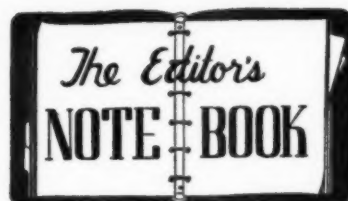
RATED AT 2000 WATTS

Operates on 115 volts AC, 60 cycle single phase non-inductive load, or 7.4 Amps. at full load and 44.4 Amps. at locked rotor motor load. Write for complete catalog.

SAMPSEL TIME CONTROL, Inc., Spring Valley, Ill.



Canadian Sales Distributor: Pease Foundry Co., Ltd., Toronto 1, Canada



John Q. Public

In the effort to portray the average American who does his job, pays his taxes, mows his own lawn and sends his kids to school and college, cartoonists have hit upon John Q. Public as an apt monicker.

Nobody seems to know just why this name was ever chosen, or what the Q stands for, but there has appeared a little booklet that sets up a very good explanation for "Why the 'Q' in John Q. Public." It seems that:

"Q stands for John Q. Public's Quest for freedom, for security, for peace. . . .

"Q stands for John Q. Public's Questions about the past, present and future of free enterprise. . . .

"Q stands for the Queer economic and social doctrines that have been foisted on John for the past decade. . . .

"The consequences of such economic and social Quackery can only be tragedy. Bureaucracy, plus starry-eyed fiscal policy spell ruin for our country—the end of the American dream of Freedom."

This One Didn't Jell

From W. F. Schaphorst comes a clipping about 25 years old. It says—"The eminent engineer, Dr. Charles P. Steinmetz, of the General Electric Co. is credited with the prediction that within 10 years there will be in operation not fewer than one million moderate priced electric vehicles whose approximate price will not exceed \$500, with a speed certain to average 20 miles per hour. Against the gasoline cars, he claims the disadvantages of fuel and oil costs, the concentration necessary to drive a high powered machine and the need for constant attention to its engine. Within a decade, he says, the gasoline car will be relegated to the limbo of things outlived."

Television Needs Conditioning

Nearly 1,000 new standard and FM and television stations planning to go on the air will add millions of dollars to the market for air conditioning equipment says Refrigeration Equipment Manufacturers Ass'n. A technical "must" in any television studio and an important adjunct to all types of radio broadcasting, air conditioning is now used in the majority of the 1,062 standard AM radio, 136 FM radio and 7 commercial television stations now on the air.

It is reported 462 new standard stations, 700 FM stations and 48 new television stations have applied to FCC for construction permits.

In all stations filtering of the air and cooling for performers and audiences will be necessary. But in television the concentrated heat from batteries of powerful lamps in a soundproof studio makes cooling a must.

HEATING DEALERS: Competition's Coming Back!



- Rheem brings you the plan and the products to make competition pay!

1 Carry the newest kind of heating equipment... the kind home builders are all talking about. New **winter air conditioners** that give filtered, humidified, circulated warmth. New **floor furnaces** that bring modern good looks, modern economy. Brand new **stokers** that save up to 50% on fuel, economical **space heaters**, compact **wall heaters**. Meet new competition with new products... RHEEM products.

2 Carry a range of sizes and types to fit any heating need. Units for **any fuel**... gas, coal, oil. Units for **any use**... cottage, home, factory, church. Units for **any budget**... de luxe and standard models. Rheem brings you the *complete* heating line that sells *every* prospect.

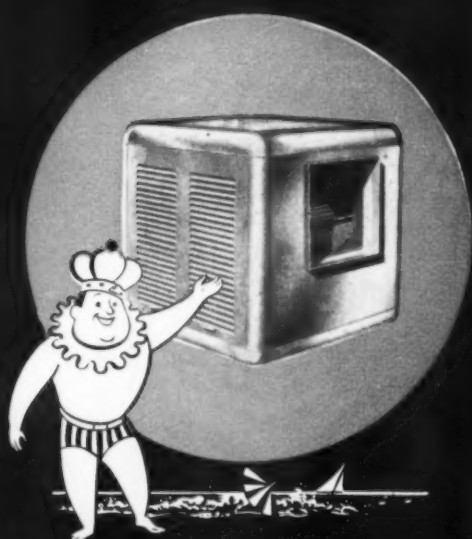
3 Carry a large stock *on hand*. Your customers will **buy** more if they can **see** what they buy. Rheem's flooring-credit plan makes it **easy** to carry a large stock. Buy in mixed carload lots, get a lower freight rate, keep your store **full** of selling products. Cash outlay is very small. These three proven sales boosters will help make competition pay *you*. Rheem has the products... so call your jobber, and get ready now for steady sales and high profits.

Do it today. For more information, write Rheem, 570 Lexington Avenue, New York 22, N. Y.



RHEEM

...making houses into homes



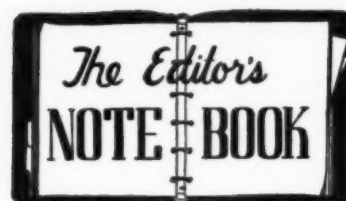
Introducing
THE NEW
ROYAL
EVAPORATIVE
COOLER

Royal has everything you could wish for in a modern evaporative cooler—truly beautiful design and finish, new engineering improvements, and an extremely quiet operation made possible by 10 live rubber vibration dampeners. Sorry—the Royal will be available only in limited quantities this season, but the coolers you receive will be complete—with motors.

Write us today for complete details—be among the first to display this new modern Royal Evaporative Cooler. Tie-up with Royal for year around extra-profits.



1024 Westminster Ave., Alhambra, California (Dept. A-4)



Junior Achievement

Scattered around the country today are more than 900 "little businesses," none of them having an officer older than 21, with a net worth averaging about \$200 and stock selling at 50 cents a share, and owned and operated by kids from 15 to 21. This, in brief, is the Junior Achievement Program whose basic keynote is "Learn by Doing" and the "learning" means—forming a company, selling its stock, buying supplies, determining a product and producing it, selling the product or service, making money to pay themselves wages and their stockholders dividends—all the things a business man must know to stay in business.

Large companies, banks and famous business men are interested in and aiding the Junior Achievement Program. The projects these groups are working on are widely varied: trouser hangers, shipping blocks, house numbers, crop markers, house fire alarm systems, incubators, pin cushions, ladies' ornaments; they put on radio programs, conduct teen-agers fashion shows, provide bookkeeping services, do advertising copy and art work for small businesses—an endless variety.

If this all too brief item attracts you, a very interesting report entitled "What Does America Think" can be obtained from Junior Achievement, Inc., 345 Madison Ave., New York (17), N. Y.

One Agency Closed—Finally

Showing how Federal bureaus and things linger on and on—and on—the government has just dissolved the United States Housing Corporation, which was set up well over a quarter of a century ago—to meet the housing shortage created by the First World War!

Preparing for the Storm

The sale of the so-called "ball point" pen (the kind you test by writing under water) has been one of the phenomena of the post-war era. It's been sort of like the cigarette lighter craze of a few years back—only worse. Millions of the things have been sold; from \$12.50 or higher the price has now skidded to 98 cents at your corner, drug store.

The manufacturers of the pens are now getting ready for the storm—the storm will be service calls. If a pen won't work the owner won't go out and buy another brand—now he wants his fixed. One pen producer is reported as lining up 30,000 of his 175,000 retailers to act as service centers. That is getting service ready in a great big way. The wonder is—where did just one manufacturer ever get 175,000 retailers. Maybe there's a moral on future service for heating equipment dealers in this movement.

An 8 foot Pittsburgh Lock
COMPLETE in $17\frac{3}{5}$ seconds!

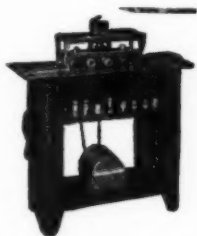


The
LOCKFORMER



*L*OCKFORMER speed—about 30 times as fast as working with a hand brake—results in tremendous savings in labor costs. These savings, and the earned reputation of Lockformer *dependability*, have resulted in the universal acceptance of Lockformer equipment throughout the entire industry.

Despite restricted manufacture during the war years, there are over 7,000 Lockformers currently in use in this country alone—many of them delivered from five to nine years ago—all of them still giving satisfactory service. If your shop does any duct work at all, you should have a Lockformer.

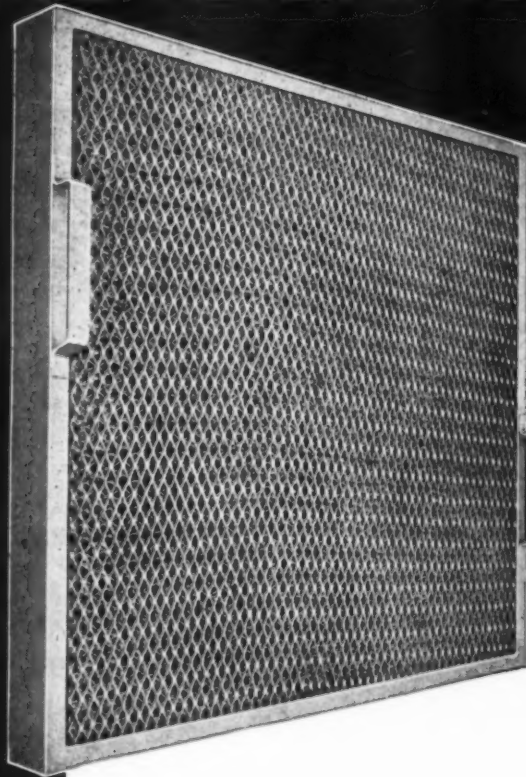


LOCKFORMER 22
equipped with Power
Flanger Attachment.

THE LOCKFORMER CO.

4615 ARTHINGTON STREET • CHICAGO 44, ILLINOIS

AGITAIR ANNOUNCES THE FILTER OF TOMORROW—*Today!*



HIGH VELOCITY
AGITAIR FM

with exclusive
**T U R B U L E N T
C L E A N S I N G A C T I O N**

with greater efficiency

**Agitair FM Filters 50% More Air At The
High Velocity of 432 F.P.M. ^**

Here's greater efficiency . . . lower resistance . . . longer life! Here's the new Agitair FM Filter with exclusive Turbulent Cleansing Action! This remarkable improvement in air filter design gives you air that's not merely strained but virtually scrubbed.

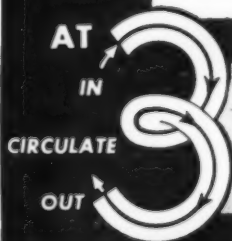
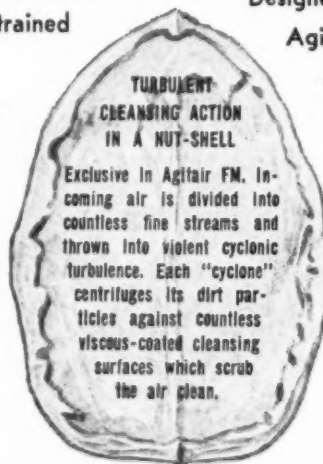
Agitair FM filters 50% more air at the higher velocity of 432 F.P.M. Two (2) FM's do the work of 3 ordinary filters . . . 33% reduction in space . . . fewer units to be installed . . . reduced servicing. This, coupled with higher dust holding capac-

ity and rugged all metal construction makes it possible for Agitair FM to deliver unparalleled all-around filter efficiency.

Designed for easy cleaning and servicing, Agitair FM can be removed, cleaned and restored to top efficiency "in a flash."

When you specify filters remember: *Agitair FM removes more dirt from more air in less time.*

SEND FOR VALUABLE BULLETIN FM
8 Pages Chock Full of data on the new Agitair FM Filter. Here's "proof-positive" of Agitair FM superiority.



KEY POINTS IN AIR CONDITIONING—AGITAIR SERVES BEST

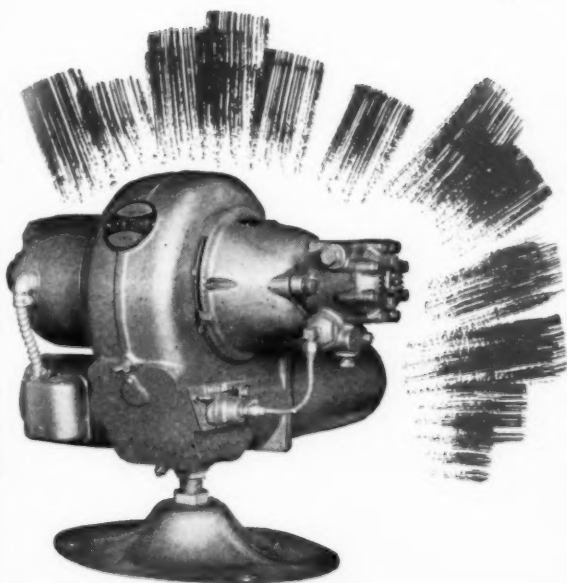


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ARE NOW DEMANDING A
**QUALITY
BURNER**



Like a dependable precision-built CENTURY



Again the customer may be choosy. No longer does he place his order for "just an oil burner." Now he questions, "Which is best?"

Dealers can always be proud to recommend a Century Model "L"—the burner that is quiet in operation . . . has low service cost . . . that through the genius of Century engineering employs a burning principle cutting down fuel consumption 15% to 30% . . . and that comes in a variety of sizes and capacities allowing you to meet every installation need. Be on the safe side—inquire about a profitable Century franchise.

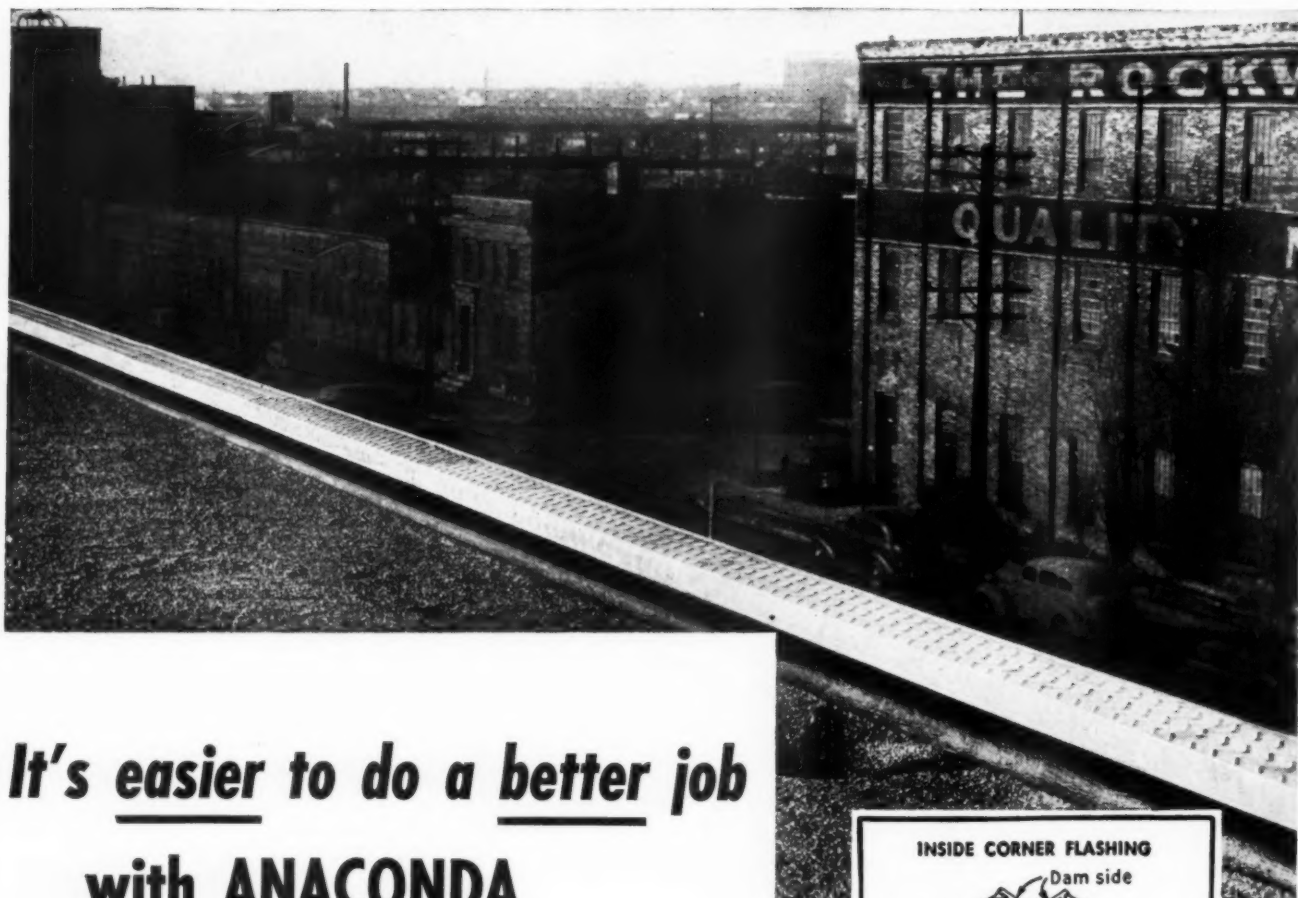
*Domestic water units and boiler burner units
have been temporarily discontinued from our
line due to material shortages.*

CENTURY
Engineering Corporation
CEDAR RAPIDS, IOWA

OIL BURNERS
HUMIDIFIERS

BOILER-BURNER UNITS
WATER HEATERS

WARM AIR FURNACES
AIR CONDITIONING



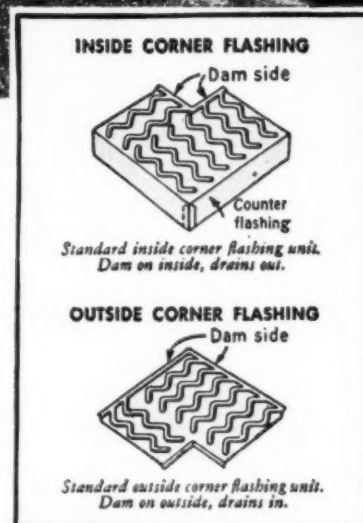
It's easier to do a better job with **ANACONDA** **Through-Wall Flashing**


THIS UNUSUAL VIEW shows a long run of Anaconda Through-Wall Flashing . . . *the flashing that drains itself dry* . . . just as the sheet metal contractor left it and before the masons followed with coping.

Here you can plainly see the outer dam that will cause the seepage of water from the coping to drain toward the roof, and the corrugations that provide a strong bond with the mortar. These zig-zag ridges prevent lateral movement and insure water-tight joints when sections of the flashing are nested endwise. Here, too, you can see how the flat selvage makes a neat bend when formed as a counter flashing.

These die-stamped sections and corner units insure controlled drainage and make the work of the sheet metal man easier. Anaconda Copper insures long life. For detailed information, write for Publication C-3.

6700

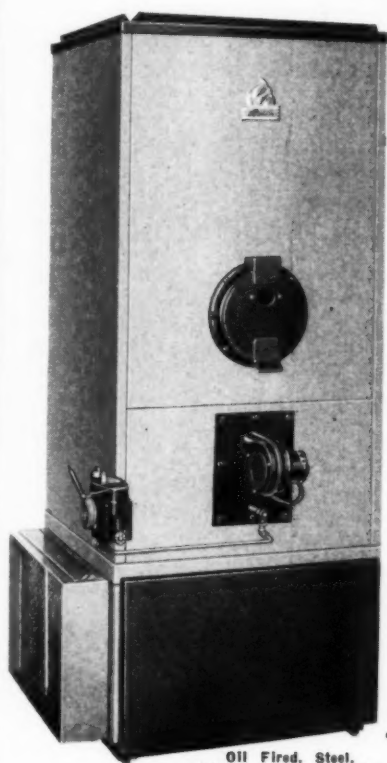




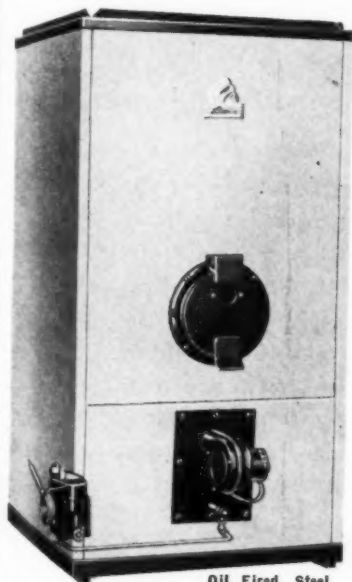
Anaconda
COPPER

THE AMERICAN BRASS COMPANY
General Offices: Waterbury 88, Connecticut
Subsidiary of Anaconda Copper Mining Company
In Canada: ANACONDA AMERICAN BRASS LTD.,
New Toronto, Ont.

ANNOUNCING *Luxaire's* NEW Vaporizing Pot-type OIL FIRED UNITS



Oil Fired, Steel,
Utility Air Conditioning
Unit



Oil Fired, Steel
Gravity Unit



Oil Fired, Steel
Air Conditioning Unit

Another distinctive Luxaire line—the new 1947 Vaporizing Pot-Type oil-fired Units—a Basement Forced Air Unit . . . a Gravity Unit . . . a Utility Forced Air Unit.

Smartly styled, baked enamel cabinets . . . New, steel combustion chamber with automatic, submerged, arc-welded seams . . . Heat absorbing radiation shield . . . Forced draft combustion . . . and the amazingly easy installation or removal of the complete burner assembly without dismantling heating element or cabinet—make Luxaire the outstanding line in vaporizing, pot-type oil-fired equipment.

Write for complete
information today

THE C.A. OLSEN MANUFACTURING COMPANY

Luxaire



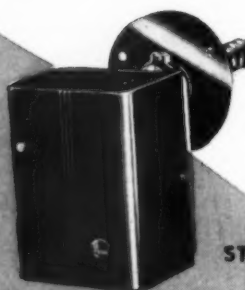
HEATING & AIR CONDITIONING UNITS
ELYRIA, OHIO

CONTROLS

that lead the parade!



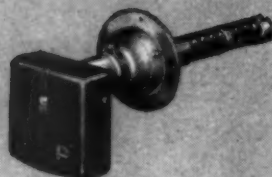
TEM-TROL



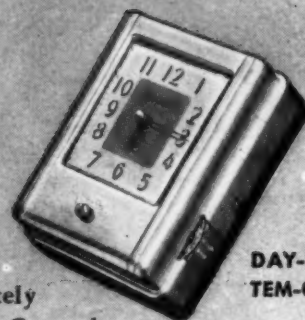
STACK SWITCH



STOKER TIMER



COMBINATION FAN AND LIMIT CONTROL



DAY-NITE TEM-CLOCK



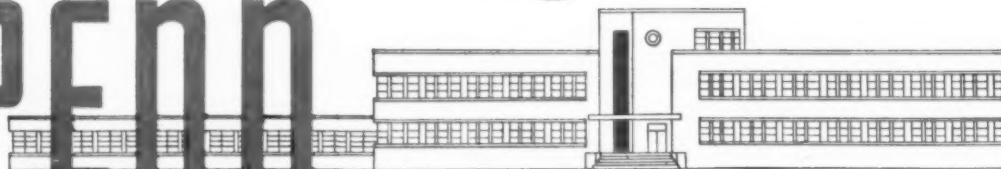
• Specify PENN Controls . . . and you can be sure of the best automatic heating controls that can be built. *Yet their extra value involves no extra cost.* They are designed, built and thoroughly tested to assure added efficiency, accuracy and dependability.

PENN's complete line provides a control for every type of heating job . . . every kind of system. It includes PENN Temtrol, the heat-anticipating thermostat which assures true heating comfort by keeping room temperatures extremely close to the selected level. There's PENN Tem-Clock, with its

economy and convenience of completely automatic Day-Nite Control.

In addition, this famous line includes the other necessary controls for automatic heating systems . . . primary controls, limit switches and relays. Specify PENN heating controls . . . it's the smart way to insure customer satisfaction. Ask your jobber about them today. Penn Electric Switch Co., Goshen, Ind. Export Division: 13 E. 40th Street, New York 16, U.S.A. In Canada: Penn Controls, Ltd., Toronto, Ont.

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

When you're in a hurry for
Stainless Steel



—remember this **SYMBOL of SERVICE**



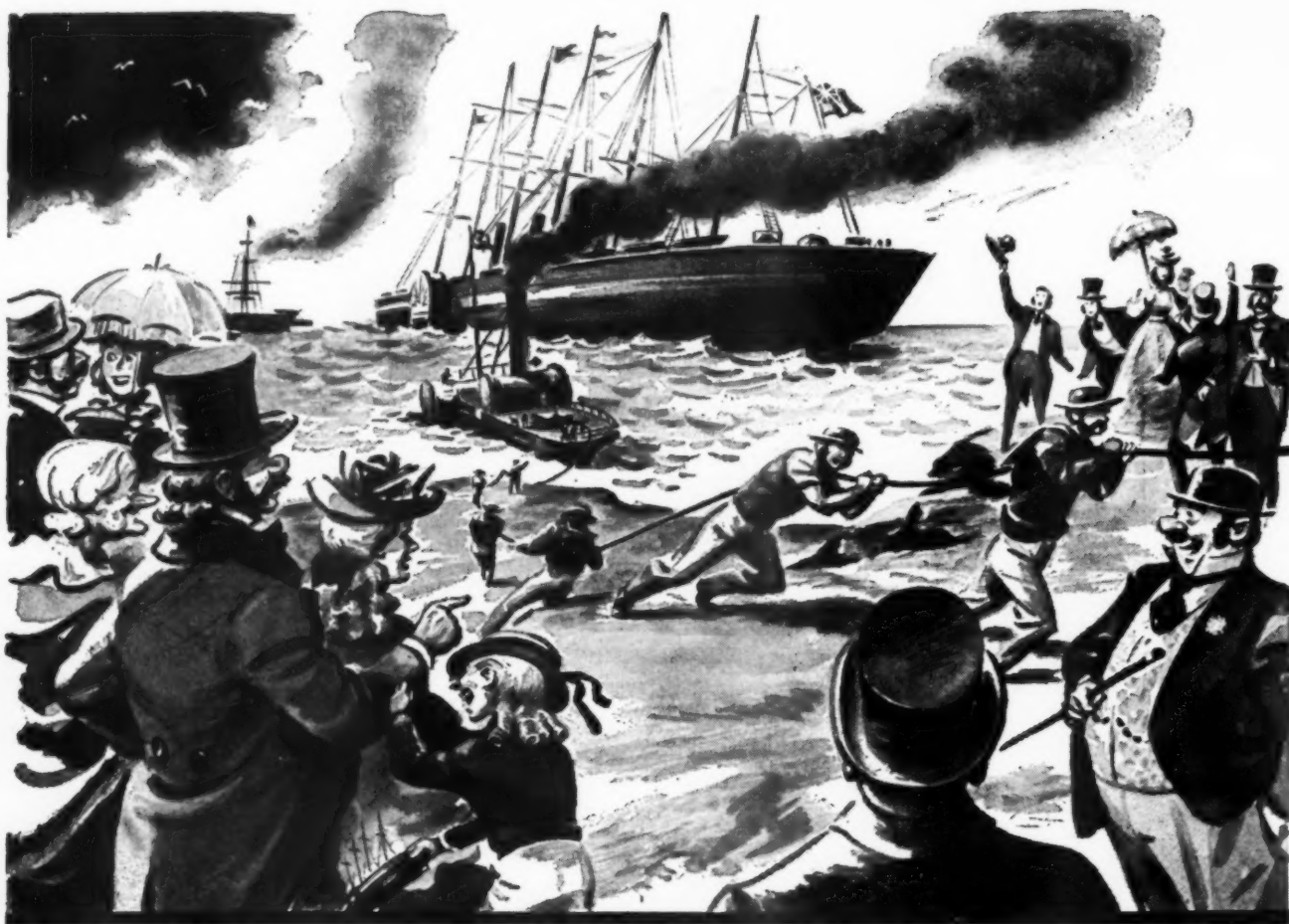
NOW, from our nine conveniently located warehouses, we can make prompt deliveries of U·S·S Stainless Steel. While it costs no more than other stainless steels—its use assures uniform fabrication and the finest performance in service. So, if you need Stainless Steel quickly—or if you require High Strength Steels, Alloy Steels, Carbon Steels, Machinery, etc., get in touch with our warehouse nearest you.

Whatever you must have in steel, you can rely on our every effort to give you prompt, efficient service. Telephone, wire or write.

UNITED STATES STEEL SUPPLY COMPANY

CHICAGO (90)	1319 Wabansia Ave., P. O. Box MM	BRUnswick 2000	NEWARK (1), N. J.	Foot of Bessemer St., P. O. Box 479	Bigelow 3-5920 REctor 2-6560, BErgen 3-1614
BALTIMORE (3)	Bush & Wicomico Sts., P. O. Box 2036	Gilmor 3100	PITTSBURGH (12)	1281 Reedsdale Street, N. S.	CEdar 7780
BOSTON	176 Lincoln St., (Allston 34), P. O. Box 42	STAdium 9400	ST. LOUIS (3)	21st & Gratiot Sts., P. O. Box 27	MAin 5235
CLEVELAND (14)	1394 East 39th St.	HEnderson 5750	TWIN CITY	2545 University Ave., St. Paul (4), Minn.	NEstor 7311
MILWAUKEE (1)	4027 West Scott St., P. O. Box 2045	MitcheLL 7500			

UNITED STATES STEEL



Since 8 years before they laid the Atlantic cable . . .

HOMEOWNERS HAVE BEEN ENJOYING THATCHER FURNACES

IT was 1858 and at last the long, tough job was over. Skyrockets arched over Union Square as all New York joined the torchlight celebration. The Atlantic had finally been spanned by cable. But for eight years before that, scores of American homeowners had cause to celebrate something closer to home — the modern comfort of home-heating by Thatcher.

Today, in our brand-new plant, we are producing for your customers more and finer Furnaces, Boilers and Air Conditioners than ever. Today, though we're proud of our 97 years of quality production, we're prouder still of our partnership with *you* — of the way you and we can work together to give *your* customers the finest service money can buy.



Thatcher

FURNACE COMPANY

Garwood, New Jersey

SPECIALISTS IN HEATING SINCE 1850

Buildings that LAST



Plasteel Roofing and Siding Installation
on building at Port of Tacoma, Washington

Roofing and Siding — your building "cover" — is the deciding factor over the years on —

1. How long your original building lasts —
2. How much it costs you for periodical painting and maintenance —
3. How often you have to make costly repairs and replacements.

That is why in choosing your building "cover" you should choose one that insures permanency — that you can apply and forget — not one that requires periodical expense of painting, maintenance and replacements.

PLASTEEL

1. STEEL — For strength — durability — light weight — and small bulk.

2. PLASTICS — For air-tight protection against rust and corrosion.

3. MICA — Finish coat for "weather" protection and pleasing appearance.



the modern Roofing and Siding is steel permanently protected (all over) by a specially developed plastics coating. It resists corrosive atmospheres — rust — salt spray — weather — heat and cold. Never needs painting — lasts indefinitely — and gives your building a pleasing appearance. Choose permanency — choose **PLASTEEL**.

Write or Wire for Complete Information Today.
A Few Choice Territories Still Available
for Representation.



PLASTEEL PRODUCTS CO.

General Office and Plant

Washington, Pennsylvania



Over the years of steady progress in the development of better gravity furnaces RYBOLT Series 15 has always been outstanding for its efficient and economical performance.

It is shown here as a symbol of RYBOLT prestige for quality and dependability in the heating field. As it always has before, the RYBOLT gravity furnace today

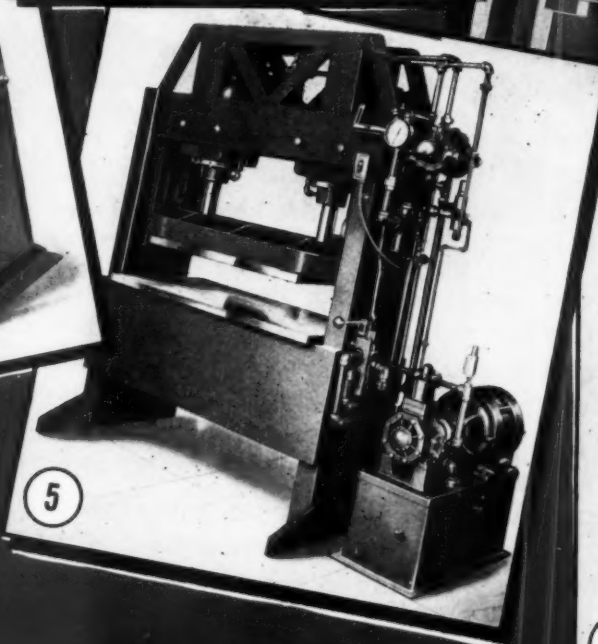
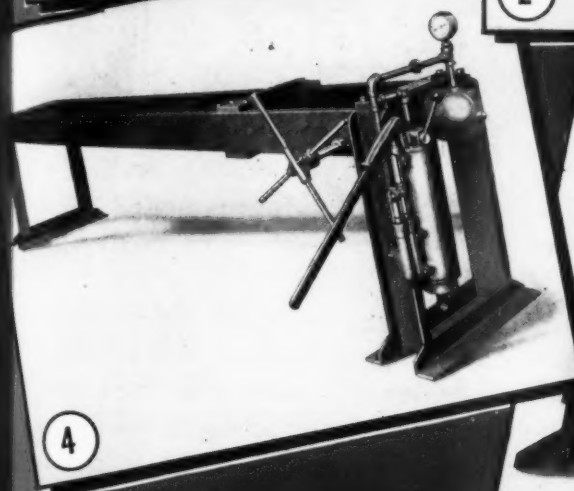
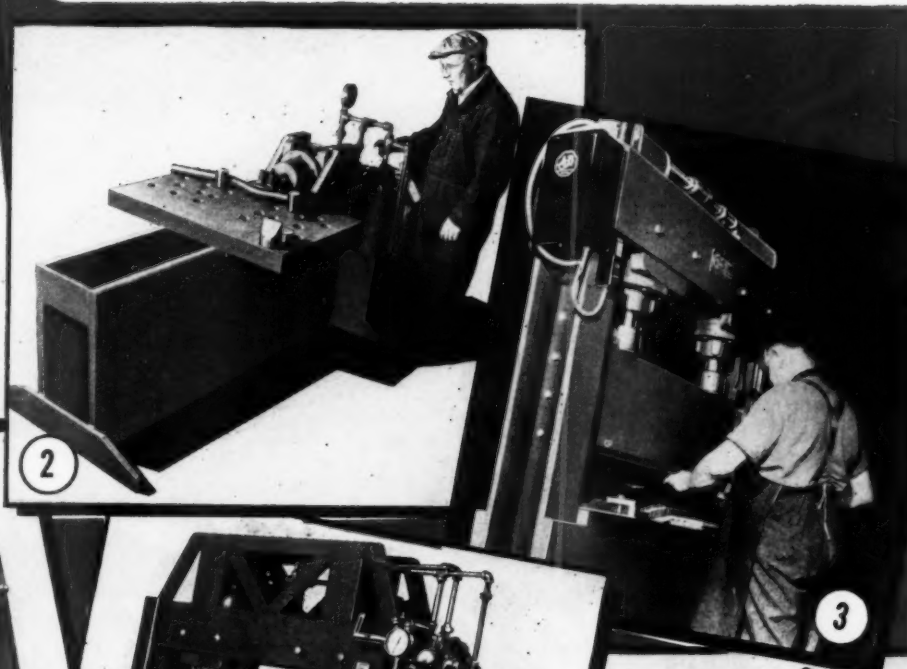
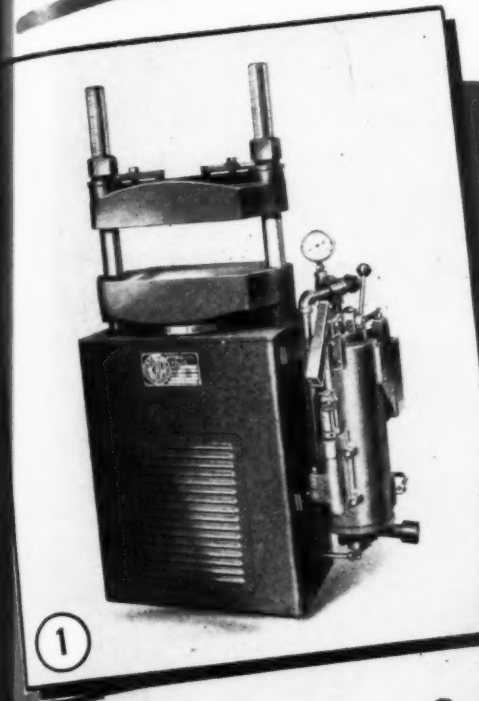
embodies many important new improvements and refinements developed by our engineering staff. This applies also to the complete RYBOLT line of warm air heating and air conditioning units—fired by all permitted fuels—for all home heating requirements. As a better line throughout it represents unusual sales possibilities for you.



THE RYBOLT HEATER COMPANY
615 MILLER STREET ★ ASHLAND, OHIO

NAME IT... AND YOU CAN HAVE IT!

KRW MAKES ALL KINDS OF HYDRAULIC PRESS ADAPTATIONS... TELL US WHAT YOU WANT, WE EITHER HAVE IT OR WE WILL MAKE IT



1. Plastic Molding Press. 2. Bending Press. 3. Stamping Press. 4. Horizontal Press. 5. Forming Press. 6. Motor-driven Arbor Press.

KRW Hydraulic Presses are available in tonnages ranging from 25 to 100-tons and either hand-operated, air-operated or motor-driven.

NAME IT...
MAIL COUPON TODAY

K. R. WILSON
BUFFALO 3, NEW YORK

K. R. WILSON, 215 MAIN ST., BUFFALO 3, N. Y.

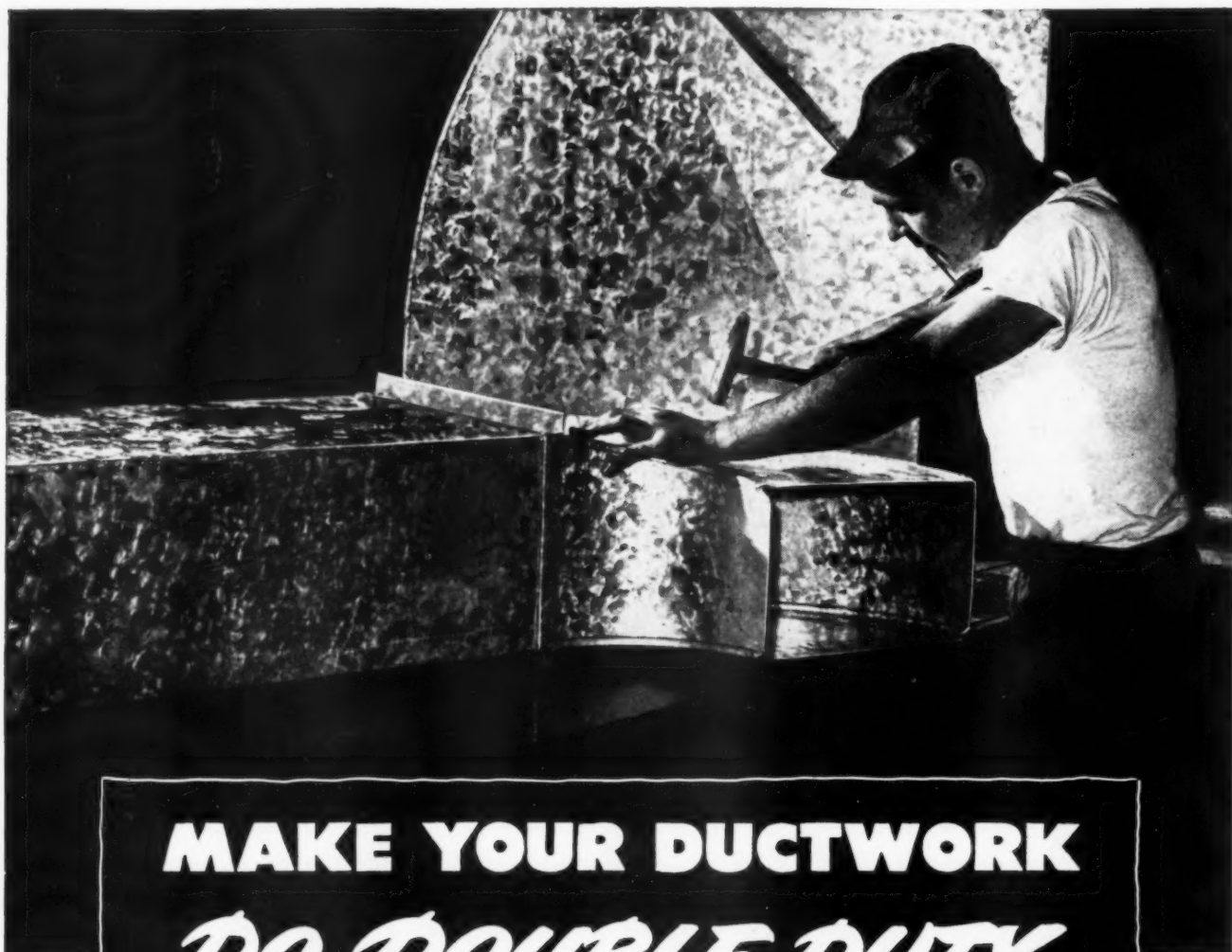
Please furnish information and prices on

Plastic Presses ☐ Bending Presses ☐ Stamping Presses ☐
Horizontal Presses ☐ Forming Presses ☐ Arbor Presses ☐

Firm _____

Address _____

City and Zone _____ State _____



MAKE YOUR DUCTWORK *DO DOUBLE DUTY*

By double duty we mean ductwork that gives your customer the years of trouble-free service he expects and in turn brings you the kind of good-will that builds business.

Ductwork of this quality demands sheets with greater-than-average resistance to rust. Beth-Cu-Loy Galvanized Sheets have this resistance. Their effective life in corrosive atmosphere is 2 to 2½ times that of ordinary galvanized steel sheets.

This added life is the result of two factors. One is the outer protection of the coating of Prime Western zinc, the other is the inner protection of the copper-bearing steel base. Corrosion that eventually breaks through the coating is resisted by the steel itself.

This dual defense against rust makes Beth-Cu-Loy Galvanized Sheets valuable for use in ductwork as well as in other types of sheet-metal applications where the design makes painting impractical.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation*

Beth-Cu-Loy Galvanized Sheets



WHAT DOES THIS BACKLOG MEAN TO YOU?



One and Two Family Houses
\$2 BILLION* A YEAR



Factories, Stores and other
Non-residential Buildings
\$2 BILLION A YEAR



Apartments and Hotels
\$1 BILLION A YEAR

*SOURCE: Dodge Reports: Estimated
Yearly Construction 1947 to 1957

You've heard plenty about the "backlog of construction" shown here. But did you ever stop to think what it means to *you*? According to recognized authorities, the construction industry will erect new buildings to the significant total of five billion dollars in each of the next ten years. Part of this unprecedented backlog lies in *your* area.

To meet the oil heating needs of these new buildings . . . from bungalow to skyscraper,

store to factory . . . PETRO offers you a *complete* line of oil burning equipment. There are pressure atomizing models handling from 1 to 18 gallons per hour of domestic fuels. Heavy-duty rotary cup models burn from 11 to 145 gallons per hour of heavy commercial oils.

The PETRO line of burners, water heaters and boiler- (or furnace-) burners is handled by an established heating wholesaler in your territory. Write for his name.

PETRO

REG. U. S. PAT. OFF.

MAKERS OF GOOD OIL BURNING EQUIPMENT
SINCE 1903

PETROLEUM HEAT AND POWER COMPANY • STAMFORD, CONNECTICUT

PETRO FUEL OIL BULK PLANTS, DISTRIBUTION TERMINALS AND FACILITIES IN: BOSTON • PROVIDENCE • STAMFORD
MT. VERNON • NEW YORK • MINEOLA • NEWARK • PHILADELPHIA • BALTIMORE • WASHINGTON • CHICAGO

WATCH

for this ad . . .

YOUR AD!

in "Better Homes & Gardens"
"House Beautiful" and
"Small Homes Guide"!

Once again the makers of DUST-STOPS* are addressing the nation's homemakers, telling and selling the advantages of *modern, clean, warm-air heat*.

Look at this advertisement, reaching millions—in the April issues of the two popular monthlies and the spring edition of Small Homes Guide. Read the copy—*your* selling copy! Here is advertising that works and sells for all of us, helps build a bigger, stronger, more prosperous industry.

Since the early thirties Owens-Corning Fiberglas, makers of DUST-STOPS, have engaged in such promotion. Our friends in the industry have been kind enough to tell us that this is good advertising . . . for *them*, and for *you*. If it is, it's good advertising for *us*, too. Let's keep modern, warm-air heat out in front!

Owens-Corning Fiberglas Corporation,
Dept. 930, Toledo 1, Ohio.

In Canada: Fiberglas Canada Ltd., Toronto, Ontario.

OWENS-CORNING FIBERGLAS CORPORATION

*Registered trademark

"Your partner whose Actions speak louder than words"



The right heating system for that new home can do a lot more than provide heat. It can save you hours . . . and days . . . and weeks of nasty HOUSE CLEANING. Can prolong the life and beauty of your home furnishings. Can save you money in still other ways.

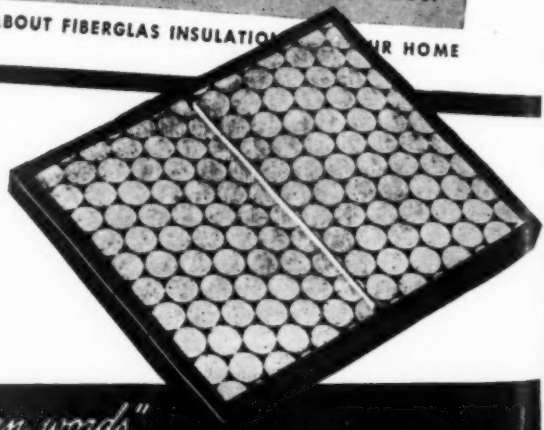
Modern Warm-Air Heat is efficient, thrifty, quickly responsive. Even more important, modern warm-air heat is clean—efficient replacement-type filters remove dust and lint from the heated air before it is mechanically circulated to your living quarters. Moisture can be added for proper humidity.

Convenient (thermostatically-controlled), forced-warm-air heat has revolutionized home heating in the past decade. Learn all about its advantages before you buy, build or remodel your home. Get the facts from your architect, builder or heating contractor.

DUST-STOP Air Filters are standard equipment in most modern warm-air furnaces. Replacements (usually needed twice a year) are available everywhere, cost but little to buy. Owens-Corning Fiberglas Corporation, Dept. 910, Toledo 1, Ohio. In Canada: Fiberglas Canada Ltd., Toronto, Ontario

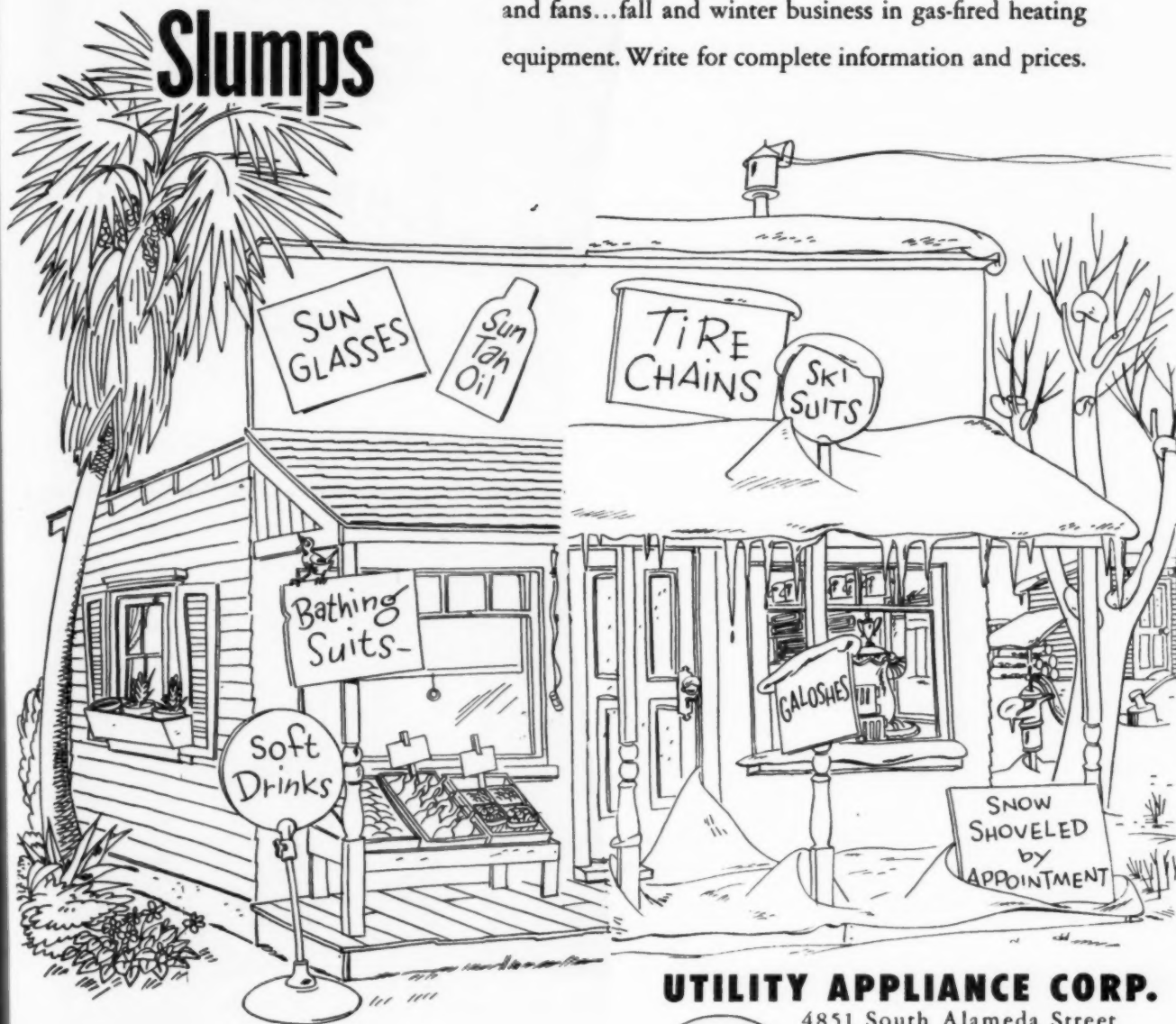


ASK ABOUT FIBERGLAS INSULATION FOR YOUR HOME



No Seasonal Slumps

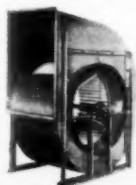
Dealers who handle the complete Utility line have an active business all year — no seasonal slumps — profit every month. Crews keep busy and the cash register jingles . . . with spring and summer sales of air coolers and fans . . . fall and winter business in gas-fired heating equipment. Write for complete information and prices.



UTILITY APPLIANCE CORP.

4851 South Alameda Street
Los Angeles 11, California

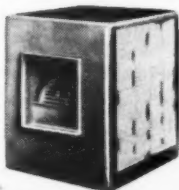
UTILITY
DIVISIONS
UTILITY FAN CORPORATION
GAFFERS & SATTLER • OCCIDENTAL STOVE CO.



HEAVY DUTY BLOWERS



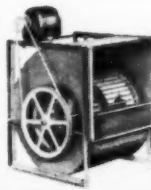
FORCED AIR FURNACES



AIR COOLERS



PROPELLER FANS

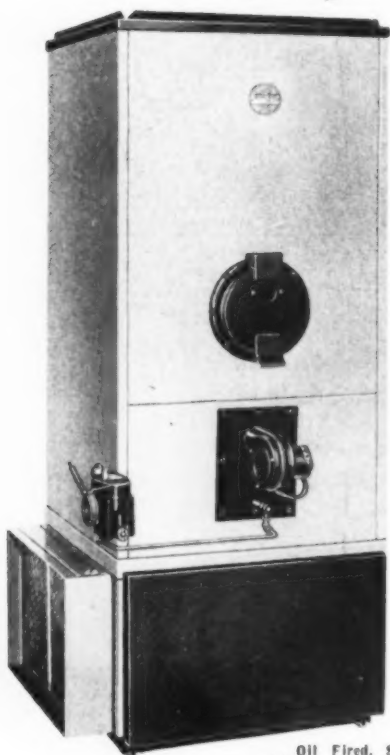


BLOWERS



FLOOR FURNACES

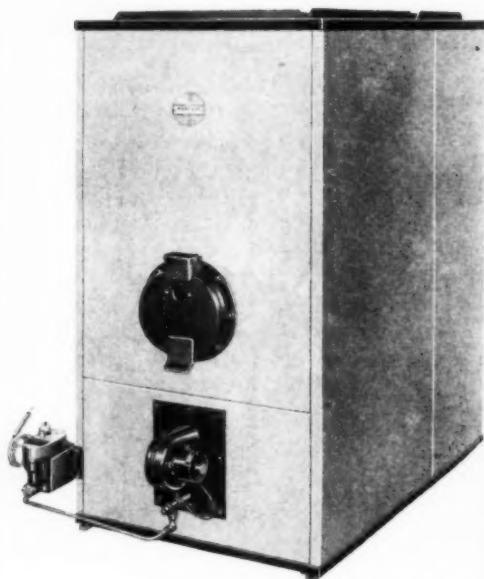
Now! Cash in **on OIL HEATING** ***Sales*** **with MONCRIEF'S 1947** **Vaporizing Oil Fired Units**



Oil Fired, Steel,
Utility Air Conditioning
Unit.



Oil Fired, Steel,
Gravity Unit



Oil Fired, Steel,
Air Conditioning Unit

Here's your opportunity to cash in on the greatest profit-making, market-demand for oil-fired heating equipment. This new, distinctive Moncrief line of vaporizing oil-fired heating and air conditioning units with baked enamel cabinets—combustion chamber with automatic, submerged arc welded

seams—and the revolutionary design that allows the remarkably easy installation or removal of the complete burner assembly without dismantling the cabinet or the heating element, will enable you to get your share and more of this profitable, desirable business.

Write for complete information and the name of your nearest jobber.

THE HENRY FURNACE COMPANY • Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

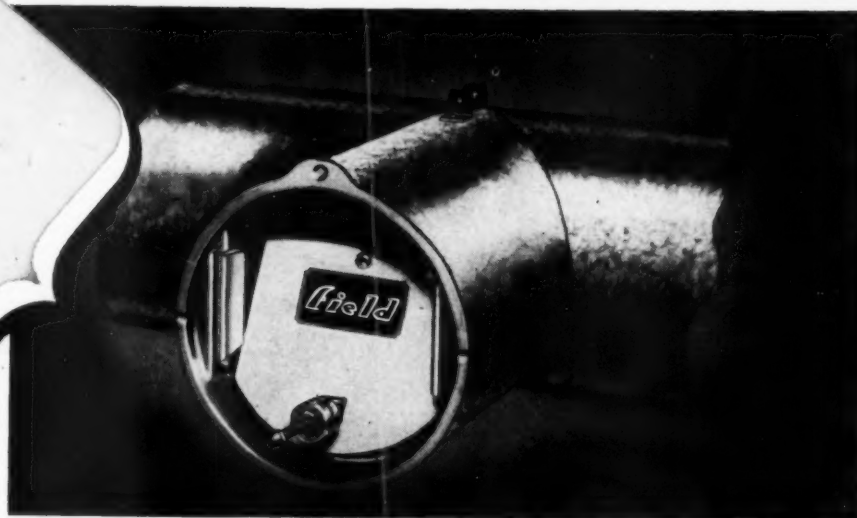


FURNACE PIPE AND FITTINGS

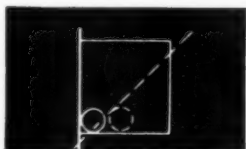
ON
THE FINEST
HEATING
EQUIPMENT

DRAFT IS
CONTROLLED
by
Field

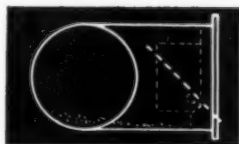
HEATING EQUIPMENT
COAL - OIL - GAS



The famous *Field* design



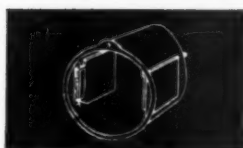
ROLLING TYPE HINGE PIN
— means no friction, no binding, no need for oiling, no fear of corrosion. Note the off-center gate mounting.



EXTENDED HOUSING
— places gate outside the flow of fouling soot and gases — no warping, no binding.

SIDE WINGS

— mean greater accuracy throughout the full range of the control. Fuel savings range up to 25%!



- Because so much depends on proper control of drafts, leading heating equipment manufacturers are selecting the Field Barometric Draft Control as standard equipment. And alert dealers are installing Field Controls in all hand-fired furnaces in their territories. The installation is highly profitable, and provides a "door opener" for future sales of automatic heating equipment. Write today for facts on the Field line — most efficient, most accurate, most reliable draft controls made today.

 And the Field Control comes complete ready to install.

Field

FIELD CONTROL DIVISION
OF H. D. CONKEY & CO. MENDOTA, ILLINOIS



**YOUR
CUSTOMERS**
Demand

HONEYWELL
CONTROLS

"Sell the product that's in demand!"

THIS is the A B C of successful merchandising—a rule that all businesses recognize. And in the automatic control field, Honeywell products are in demand by every group — from the manufacturer of heating equipment to the home owner. It's easy to explain this Honeywell leadership, too. Backed by more than 60 years of engineering experience, Honeywell controls are known to mean dependability and reliable performance year after year with minimum service. And because Honeywell constantly pioneers new developments, each control offers important features that combine all the advantages expected of modern warm air heating control equipment . . . Minneapolis-Honeywell Regulator Co., 2649 Fourth Ave. So., Minneapolis 8, Minn. Canadian Plant: Toronto 12, Ontario . . . Branches and distributors in all principal cities.

MINNEAPOLIS
Honeywell
CONTROL SYSTEMS

Meet the Oil Burner Demand with the **ROSS* OIL BURNER**

★ Formerly manufactured by us
under the name of MARINE
OIL BURNER.

**Engineered to
Please Dealer
and Customer**

Low Cost Performance

Delivers more heat for less money

Quiet Operation

Vibration free—cast aluminum construction

Simple Installation

Easily Serviced

Vital parts quickly accessible



—WE WANT DEALERS—

Profitable Franchise . . . Assured Deliveries

We want more dealers to handle ROSS OIL BURNERS and are prepared to offer valuable franchises in good territories and make substantial delivery guarantees during the critical installation months ahead. Our production is now rising to a peak far above that which made us the production leader in 1946. You can depend

on the leader to deliver the burners, and ROSS OIL BURNER has what it takes to please you and your customers. You can sell them; we can deliver them. Wire us today, or mail the coupon for further information on the profitable dealer franchises now available.

MARINE
MANUFACTURING COMPANY

**214 West Ontario Street
Chicago 10, Illinois**

TELEPHONE WHITEHALL 6626

MARINE MANUFACTURING COMPANY
214 West Ontario Street
Chicago 10, Illinois

I want to know all about the ROSS Oil Burner Profitable Dealer Franchise. Please send complete details, with no obligation.

NAME _____

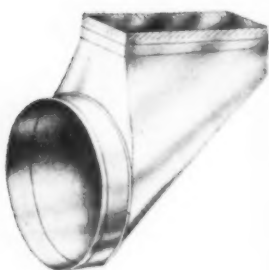
ADDRESS _____

CITY _____

ZONE _____

STATE _____

Showing just a few
Char-Gale fittings



* **CHAR-GALE** PIONEERS AND PERFECTORS OF
ITS USE, TELLS WHY...

ALUMINUM Makes the BEST Fittings

Feather Light



The easiest handling fittings ever made! Cut strain and time on installations—cut transportation time and cost—cut handling time on the job.

Stronger - Longer Lasting



Rustproof clear through! Installations are stronger with aluminum—last years longer.

Better Looking

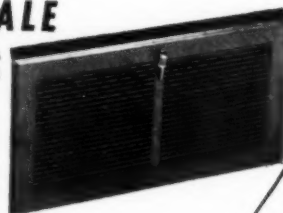


More customer satisfaction! The smooth, bright beauty of these fittings does not discolor with heat or time. Needs no painting or covering—just naturally beautiful.

And It Costs No More!

*CHAR-GALE REGISTERS

Sidewall, floor or
baseboard, air condi-
tioning or gravity,
there are Char-Gale
registers to fit your
needs.



PREFABRICATED
DUCTS AND FITTINGS
FOR WARM AIR
HEATING

CHAR-GALE

CHAR-GALE MFG. CO. MINNEAPOLIS 6, MINNESOTA

* "NO HEATING PLANT IS BETTER THAN ITS INSTALLATION — NO INSTALLATION CAN BE BETTER THAN ONE OF CHAR-GALE FITTINGS"



PROVED!

EXCLUSIVE VACUUM-DRAFT

Norge-Heat's oil-burning winter air-conditioners are the only furnaces with this sensational Vacuum-Draft—the invention that *pulls* air through the combustion chamber to give these new advantages:

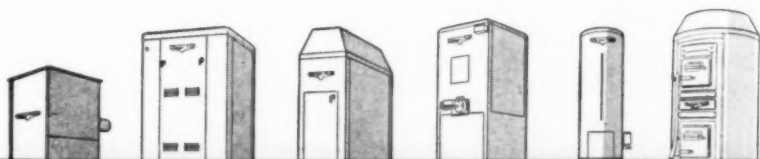
No oil fumes can enter the circulation system, because the pressure in the combustion chamber is always lower than that in the house. Combined with other Norge-Heat advancements, this Vacuum-Draft stops all "cold 70's" and "over-ride" . . . gives instant response to the thermostat . . . prevents loss of heat up the stack in the off-cycle . . . cuts installation costs . . . cuts service costs . . . delivers more even heat . . . assures greater reliability—and all at record-breaking low cost.

Such news-making improvements warrant investigation. Just write—



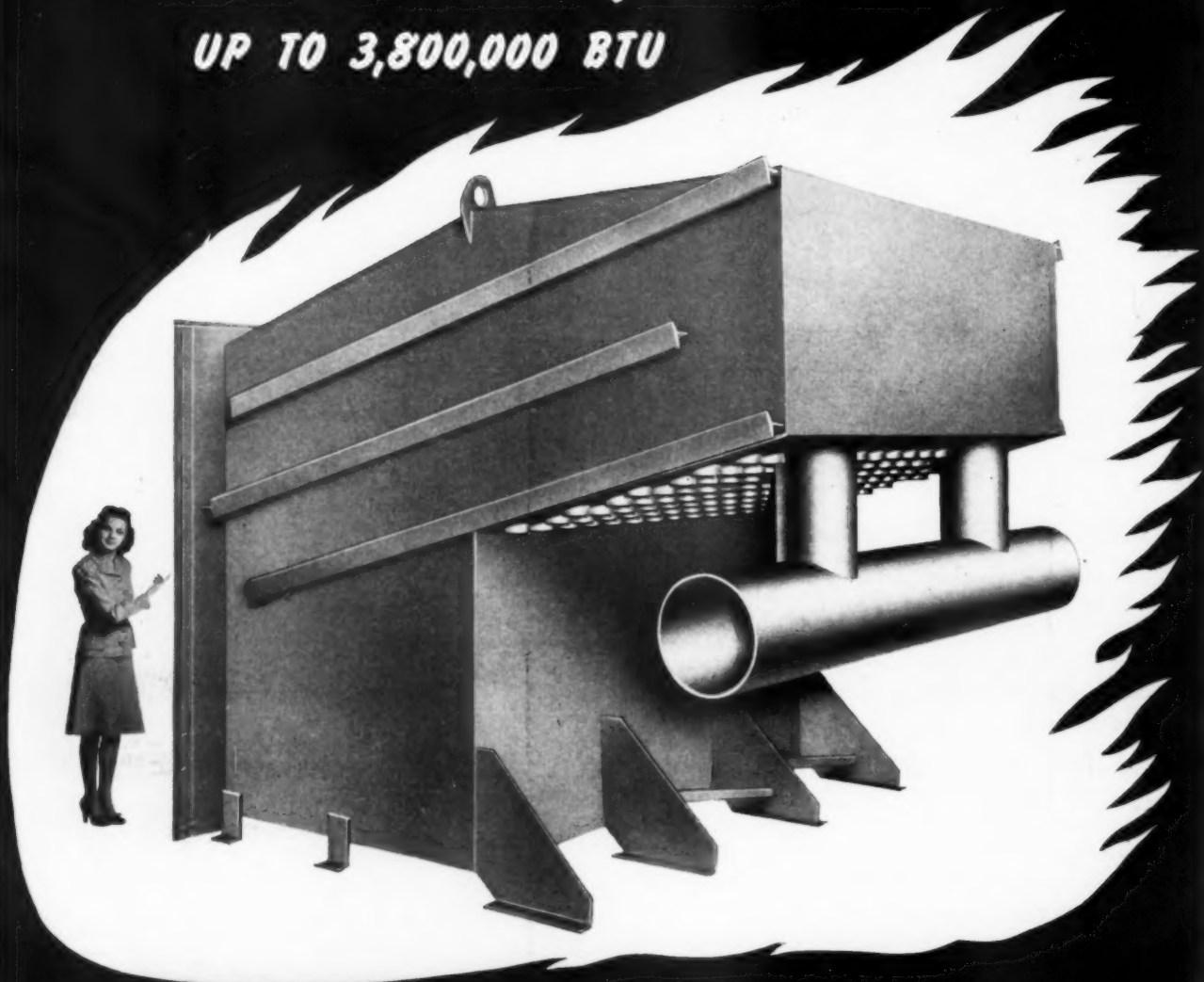
Norge Heat

Division of Borg-Warner Corporation • 574 East Woodbridge St., Detroit 26, Michigan



J & C "PowerRated" HEATERS

UP TO 3,800,000 BTU



* DESIGNED TO-FIT-THE-JOB . . . PROVIDE SPECIFIED BTU OUTPUT TO MEET BIG REQUIREMENTS.

J & C POWERATED Heaters are designed for specific jobs where the heating requirements range from 380,000 to 3,800,000 Btu. There's a J & C POWERATED Heater—in one trim, compact unit—for heating apartment buildings, churches, factories, warehouses, office buildings, and industrial plants. The single J & C installation eliminates the initial cost and maintenance expense of multiple heating units. J & C POWERATED Heaters because of their outstanding performance have gained for themselves pre-eminence both in the field of heating and processing. These Units may be gas, oil, or coal fired. They are built with a high percentage of Direct Radiation Heating Surface thus producing more heat per unit of fuel. One piece welded construction insures gas tight joints—prevents leakage of noxious fumes and soot into air stream. This type of construction results in long life and dependable performance. All J & C POWERATED units are engineered for specific jobs, whether for heating or processing and both blowers and burners of correct design and capacity are supplied. These systems are readily adapted to controlled humidification and year-round air conditioning. For maximum coverage of the profitable big-installation field, sell the heaters with all the advantages engineered into individual, streamlined units—sell J & C POWERATED Heaters.

Your distributor will give you full particulars, or you may write direct to the Home Office.

A PRODUCT OF
JACKSON & CHURCH CO., SAGINAW, MICHIGAN

"WORK WELL DONE SINCE '81"



RECOGNIZED BY REPUTATION...

WEIRTON

WEIRZIN Electrolytic Zinc-Coated Sheets and Strip • WEIRALEAD Lead Alloy-Coated Sheets • Long Ternes
WEIRITE Hot-Dip and Electrolytic Tin Plate, Tin Mill Black Plate and Special Coated Manufacturing Ternes
WEIRCOLOY Copper-Bearing Galvanized Sheets and Roofing Products • Lacquered and Coated Products • Structurals
N.A.X Low-Alloy Steels • Cold-Rolled Spring Steel • Cold-Rolled Sheets and Strip • Hot-Rolled Strip



WEIRTON STEEL CO.

WEIRTON, W. VA. Sales Offices in Principal Cities



Division of **NATIONAL STEEL CORPORATION**
Executive Offices, Pittsburgh, Pa.

The *tireless twins* offer *effortless* heating convenience



COMBINATION FAN AND LIMIT CONTROL OUTSTANDING FEATURES

- Exclusive Twin Contact Mechanism assures positive contact, snap-action and magnetic acceleration.
- Dial rotates—visibly indicating bonnet temperature.
- Summer fan operation is made by external knob adjustment, without disturbing fan or limit switch settings.
- Combination control is easily installed—mountable in any position.

Automatic heating with the Tireless Twins is the greatest convenience you can sell for better, easier, indoor living. Unequalled as a faithful, silent, round-the-clock servant it's the only modern home equipment that is completely automatic — free from *all* physical effort. With the Tireless Twins on the job, home heating becomes truly effortless. Dealers everywhere recognize the important advantages in selling a heating unit equipped with Twin Contact Controls . . . an important reason why leading manufacturers of heating systems pre-select Twin Contact Controls to bear their trade mark.

PERFEX CORPORATION, MILWAUKEE 7, WIS. • Perflex Controls Ltd., Toronto 1, ONT.


PERFEX

TWIN CONTACT CONTROLS

MANUFACTURERS OF AUTOMATIC CONTROLS BEARING THE TRADE MARK NAMES OF LEADING PRODUCERS OF AUTOMATIC HEATING SYSTEMS AND APPLIANCES

EFFORTLESS AUTOMATIC HEAT . . . DOES THE JOB COMPLETELY

AMERICAN



The Vital Link

Experience

Write NOW for dealership
in your territory!

A quarter-century of
evaporative cooling experience,
with thousands of successful in-
stallations throughout the country...
are behind these coolers. The record
is impressive.

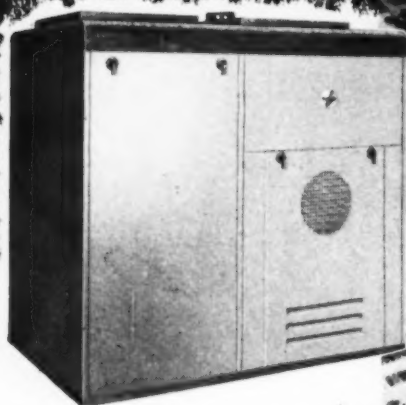
Evaporative Cooling at its best, and
the name "Great National" are
synonymous. Why not let this
experience work for you?

GREAT NATIONAL AIR CONDITIONING CO.

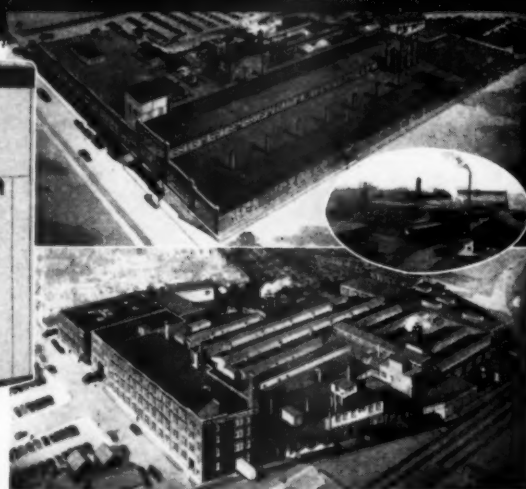
"Weathercrafters for the Nation"

2125 North Harwood Street, Dallas 1, Texas

What's INSIDE and BACK OF the furnaces you install?



Series 20 Winter Air Conditioning Unit



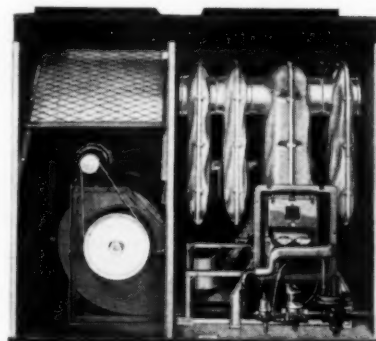
NIAGARA Winter Air Conditioners and Gravity Furnaces are Backed by 55 Years' Experience

For more than 55 years Niagara has been engaged in the manufacture of residential heating equipment. Niagara's original plant, shown in the oval above, has grown into two large plants,

located on two main line railroads. There's a heap of experience back of today's Niagara furnaces and winter air conditioners.

Unique Cast-Iron Heat Exchanger Provides Exceptional Efficiency

A distinctive Niagara achievement is the cast-iron heat exchanger of the Series 20 gas-fired winter air conditioners and gravity furnaces—cast in our own foundries. The walls of the combustion chamber and radiating sections have long, deep corrugations placed at different angles. These corrugations cause the hot gases to take a swirling motion and make the fullest contact with the combustion chamber walls. This scrubbing action and similar wiping of fresh air over the corrugated outer surfaces extracts maximum heat—the secret of Niagara's reputation for operating economy.



Series 20 with front panels removed. Available also with 3-speed direct-drive blower.

A Furnace for Any Domestic Installation



10-75 VAC Gas-Fired Winter Air Conditioner



Series 20 Gas-Fired Gravity Cast Iron



Series 10 Gas-Fired Gravity Steel

The complete Niagara line also includes cast-iron and steel gas-fired and coal-fired gravity furnaces, and a new, compact steel gas-fired winter air conditioner, Model 10-75VAC. When you install Niagara you associate with Success.

NIAGARA FURNACE DIVISION
THE FOREST CITY FOUNDRIES COMPANY
2500 WEST 27th STREET • CLEVELAND 13, OHIO



Coal-Fired Gravity Cast Iron



Coal-Fired Gravity Cast Iron



Coal-Fired Gravity Steel

GAS-FIRED

NIAGARA

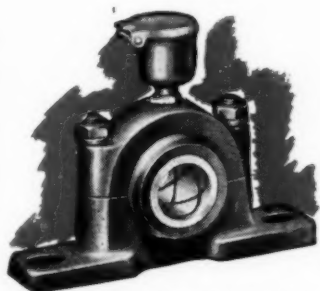
COAL-FIRED

GRAVITY AND WINTER AIR CONDITIONING UNITS

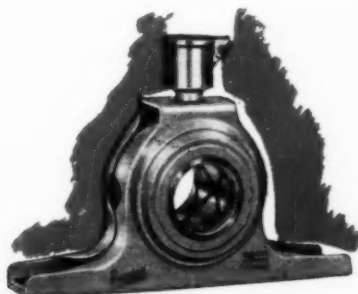
- Quiet
- Self-Aligning
- Self-Lubricating
- Strong Sturdy Housing for Any Application
- Accurately Finished Bearing Surfaces
- Easily Installed
- Low in Cost



One-Piece Steel Housing Pillow Block—Either double or single oil reservoir.



Standard Pillow Block—Single oil reservoir.



New Streamlined One-Piece Steel Housing Pillow Block—Either double or single oil reservoir.

RANDALL PILLOW BLOCKS

No wonder the count of Randall Pillow Blocks made for air handling and other types of equipment has reached millions. The features listed above have assured such superlative performance that Randalls are being used for more and more equipment where quiet, smooth performance is important.

Randall experience covers more than 41 years of intimate work with designers and manufacturers of many types of equipment. Perhaps their experience can be helpful to you. Write to Department 411 for Catalog 47.

Randall

GRAPHITE PRODUCTS CORPORATION
609 WEST LAKE ST., CHICAGO, ILLINOIS

Representatives Carrying Stocks

C. W. Marwedel
 San Francisco, Calif.
Tek Bearing Company,
 177 Lafayette Ave., New York 13
 510 Cambridge St., Boston 34
 924 Lafayette St., Bridgeport, Conn.

Salt Lake Hardware Company,
 Salt Lake City, Utah

Edward D. Maltby Company,
 1718 Flower Street
 Los Angeles 15, Calif.

POWER EGGS



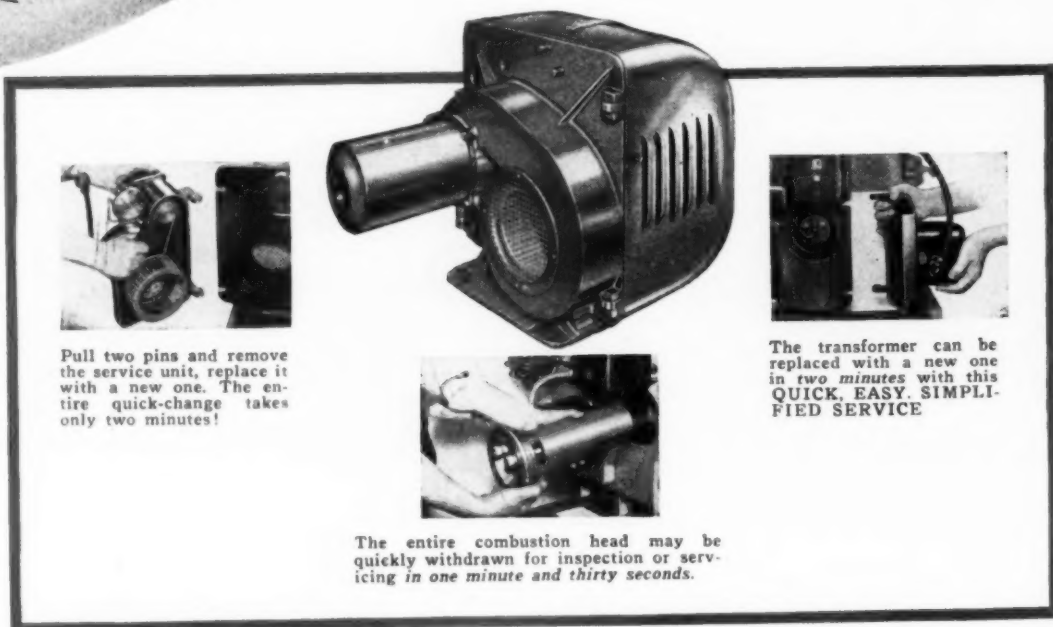
Changing power egg on aircraft—a new quick-change idea.

NOW APPLIED TO OIL BURNERS QUICK-CHANGE SERVICE UNITS SAVE TIME, WORK

The Power Egg makes possible a complete aircraft engine change in twenty-seven minutes—an operation formerly requiring eight hours! Cuts service cost to a minimum, keeps flights on schedule.

Same quick-change principle is used on the new Master Kraft conversion burner. The motor, pump or transformer can be changed in two minutes. The whole combustion head removed in a minute and thirty seconds!

THIS IS MODERN ENGINEERING APPLIED TO OIL BURNERS! THE MOST SENSATIONAL ADVANCE IN 20 YEARS!



Pull two pins and remove the service unit, replace it with a new one. The entire quick-change takes only two minutes!

The transformer can be replaced with a new one in two minutes with this QUICK, EASY, SIMPLIFIED SERVICE

The entire combustion head may be quickly withdrawn for inspection or servicing in one minute and thirty seconds.

FREE our booklet describing the new quick-change units.

Harvey-Whipple, Inc.
Dept. AA-4, Springfield, Mass.

Gentlemen:

Please send me full details on a Master Kraft

Franchise. State.

Name

Address

City

THIS MARVELOUS NEW BURNER will be ready to roll off our production lines, as soon as materials are available.

MEANTIME we are continuing to manufacture our popular pre-war type of burner, the well-known Master Kraft Models T thru M2 (Model K shown at right).



Master Kraft OIL HEAT

Manufactured by **HARVEY-WHIPPLE, INC.**

SPRINGFIELD 1, MASSACHUSETTS

**many years of satisfactory service
with "DETROIT" CRC-239 FLOAT VALVES**

DETROIT CRC-239 Float Valves have a long record of satisfactory service on every type of oil heater using a vaporizing type burner. They have a wide reputation for providing dependable control under the most difficult conditions.

Many hundreds of thousands of "Detroit" Float

Valves are serving in space heaters, water heaters, ranges, furnaces, etc.—helping to provide the satisfaction and economy of clean, reliable oil heat.

Simple—extremely durable—easy to clean—the CRC-239 is fully temperature compensated. Fuel flow is uniform regardless of fuel temperature. Full heater output is assured at all times. 2560

DETROIT LUBRICATOR COMPANY General Offices: 5900 TRUMBULL AVENUE
DETROIT 8, MICHIGAN

Division of **AMERICAN RADIATOR & Standard Sanitary CORPORATION**
Canadian Representatives — RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG



"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • "Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators

CRESCENT*... *Synonym*
for **QUALITY** in hand tools



* "CRESCENT" is our trade mark registered in the United States and foreign countries for wrenches and other tools. "Crescent" tools are made only by Crescent Tool Company of Jamestown, N. Y.

USE

Sal-Mo Asbestos

#77 DUCTBOARD

the Quick, Easy Way to Make Cold Air Return Ducts

AN asbestos product developed and manufactured for the construction of ducts in warm air heating and ventilating systems. It is made to do the same job that is also done with metal.

FIRE PROOF

SAL-MO No. 77 Ductboard is made of solid asbestos throughout. Positive protection against fire.

MOISTURE PROOF

Scientific treatment to prevent moisture absorption. It can be used any place where high relative humidity prevails.

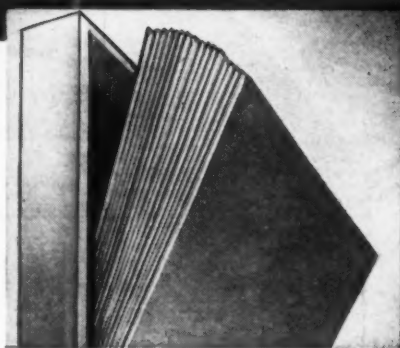
EASILY HANDLED

SAL-MO No. 77 Ductboard is a time saver. Sheets are 33" x 48", the exact size for covering two joist openings spaced at 16" centers. This makes two cold air return ducts. It is easily cut with saw, knife or snips and is applied with hammer and wallboard tacks or with a stapler. It is easily fabricated into square or rectangular ducts.

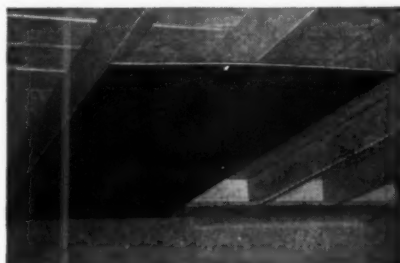
ATTRACTIVE IN APPEARANCE

Its attractive gray finish may be painted or plastered after installation.

*See Your Jobber—He Can Supply You
with SAL-MO No. 77 Asbestos Ductboard*



Smooth finished, rigid . . . Sal-Mo No. 77 Ductboard is light in weight and durable. Packed in convenient cartons.



Sheets are 33"x48"—exact size to cover two joist openings at 16" centers.

(Below)—Applying No. 77 Sal-Mo Ductboard to make two cold air return ducts.



SALL MOUNTAIN COMPANY

170 W. ADAMS ST.

Phone ANd. 2414

CHICAGO 3, ILLINOIS

Now!



A Complete Package
for
Automatic Ventilation

Silent Breeze... IT'S A SENSATION IN VENTILATION

BACKED BY BIG PROFIT PROMOTION THE YEAR AROUND!



"Big-Space" National Advertising—Half and quarter-pages in *The Saturday Evening Post* and *Better Homes and Gardens*. Newspaper campaigns for local use. Direct mail and point-of-sale displays. Convenient credit plan.

Richest Fan Market on Record—Pent-up demand in every community promises to make '47 greatest fan-selling year in history as building and remodeling swing into high gear. Cinch your share by selling *Silent Breeze*.

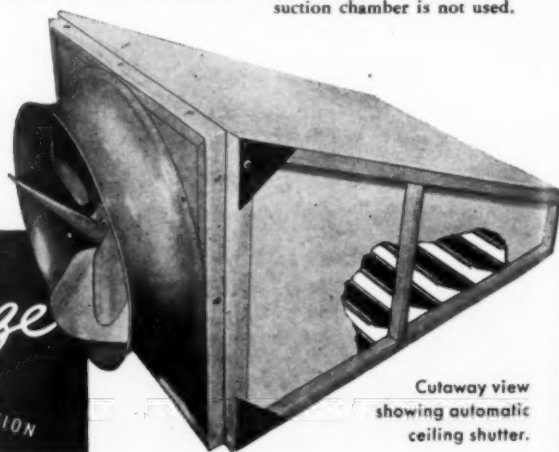
FREE—Comprehensive, 48-page Selection and Installation Manual for dealers. Contains complete information to make every installation a success. For information, write,



HOLCOMB & HOKE MFG. COMPANY, INC.
1543 VAN BUREN STREET, INDIANAPOLIS 7, INDIANA

Now—for the first time—you can sell a truly complete, fully automatic ventilating "package." For, with addition of a new, prefabricated suction chamber to the proved line of *Silent Breeze* Ventilating Fans and Accessories, you have at your command *all* you need for *any* residential installation... easily obtained from *one* long-established manufacturer... designed and built *to work together* for more efficient ventilation. This great new *Silent Breeze* package, which promises ever-greater appliance profits for you, includes:

- 1 **SILENT BREEZE FAN**—modernly designed and ruggedly built in sizes for all home, commercial and industrial applications.
- 2 **SUCTION CHAMBER**—provides a leakproof, sound-absorbing enclosure between fan and shutter or grille. Prefabricated in four panels for easy assembly.
- 3 **COMFORTROL**—a precision time switch operating on a 24-hour cycle to provide completely automatic fan operation.
- 4 **AUTOMATIC CEILING SHUTTER**—opens when fan comes on, closes when it is shut off. Latest flush-type design. Automatic outlet shutter available for sidewall installation when suction chamber is not used.



Cutaway view
showing automatic
ceiling shutter.

Silent Breeze
VENTILATING FANS
VENTILATION PLUS COOLING WITH AIR IN MOTION

PROFITABLE JOBS like these are handled best

— with U.S.S. Stainless Steel

FOR INDUSTRIAL AND CHEMICAL EQUIPMENT

SHEET metal shops that have gained a reputation for turning out good work have found that when it's a stainless steel job it pays to use *U.S.S. Stainless*.

This *perfected* Stainless Steel is so uniform in composition, in finish and physical properties that it assures the utmost uniformity in fabrication. This means that once you set up the proper fabricating procedures, you can depend on U.S.S. Stainless Steel to go through your shop smoothly and uniformly, with least trouble and delay, and with no variation in results. And that is true for *every* order of U.S.S. Stainless you use.

Remember this, if your shop has worked galvanized steel you will need no additional equipment to handle U.S.S. Stainless Steel successfully. To get the best results with it, send for our new book "Fabrication of U.S.S. Stainless and Heat Resisting Steels" and use it confidently as your guide. There's no better time than right now to establish yourself as a specialist in Stainless Steel—and there's no better steel than U.S.S. Stainless to help you reach that goal.

FOR ARCHITECTURAL PURPOSES

FOR KITCHEN EQUIPMENT AND UTENSILS

U.S.S. STAINLESS STEEL

SHEETS • STRIP • PLATES • BARS • BILLETS • PIPE • TUBES • WIRE • SPECIAL SECTIONS

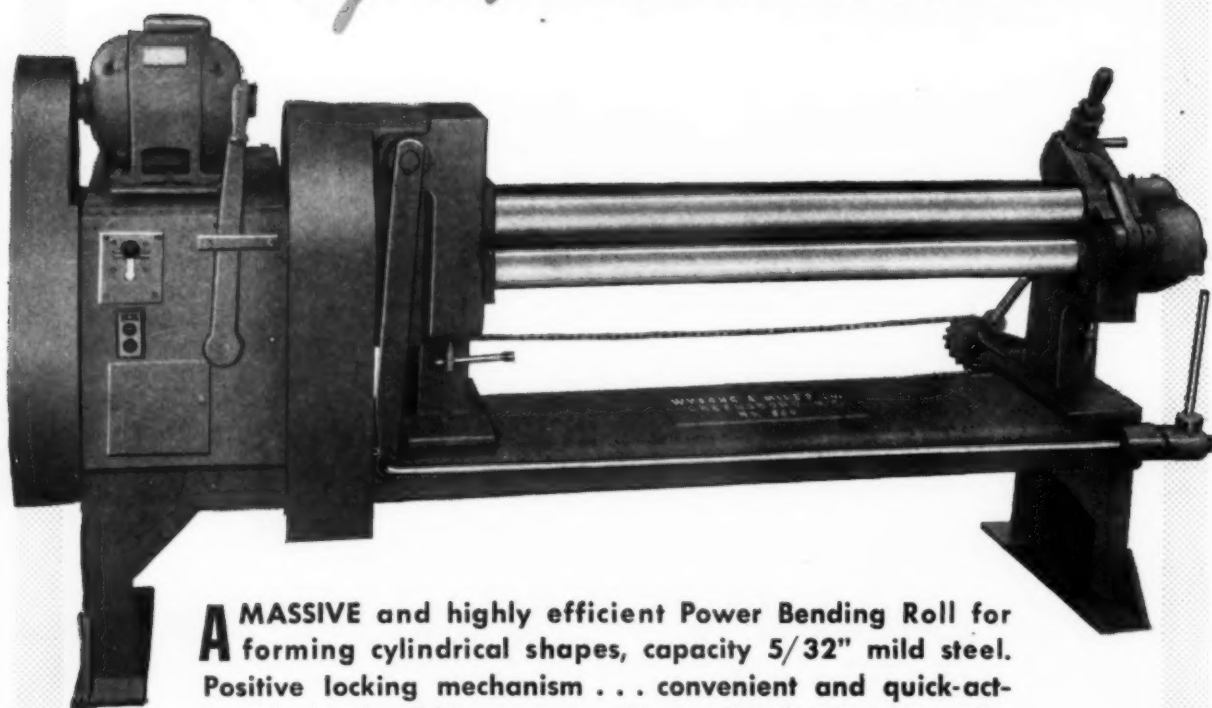


AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
 CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
 COLUMBIA STEEL COMPANY, *San Francisco*
 NATIONAL TUBE COMPANY, *Pittsburgh*
 TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
 UNITED STATES STEEL SUPPLY COMPANY, *Chicago, Warehouse Distributors*
 United States Steel Export Company, *New York*

LISTEN TO . . . *The Theatre Guild on the Air*, presented every Sunday evening by United States Steel. American Broadcasting Company, coast-to-coast network. Consult your newspaper for time and station.

UNITED STATES STEEL

POWER BENDING ROLL FOR *High Production*



A MASSIVE and highly efficient Power Bending Roll for forming cylindrical shapes, capacity 5/32" mild steel. Positive locking mechanism . . . convenient and quick-acting device for lifting upper roll. Longitudinal grooves for forming small diameters in a single pass . . . gears are in proper mesh for all settings. 5 HP motor with easily accessible reversing and magnetic switches. Wyson & Miles 100% jig and fixture construction is your guarantee of uniformly superior machines.

Made in two sizes . . . No. 860-PR, 60" working length and No. 848-PR, 48" working length. Both machines equipped with 5" diameter rolls. Write for detailed information.



WYSONG and MILES CO

GREENSBORO, NORTH CAROLINA

—DESIGNERS AND BUILDERS OF MACHINE TOOLS FOR OVER 45 YEARS



A Low Cost Conversion OIL BURNER for Small Homes...

Here is good news for heating contractors. The famous **QUAKER** Conversion oil burner is again in production. Widely known before the war as being exceptionally well engineered and priced to fit the special needs of the small home owner. The **QUAKER** Conversion oil burner is a quick seller that is simple and easy to install. Here is an opportunity to supplement your line with a burner especially designed for the mass market of small homes.

FRANCHISE AVAILABLE

Franchise now being offered to well established and reputable dealers. Immediate delivery can be made. Mail coupon for complete information and literature.

FEATURES make **QUAKER** ideal for small homes.

- **QUAKERTROL EQUIPPED.** Only the **QUAKER** has **QUAKERTROL** . . . the ingenious device that automatically regulates the flow of oil and air to the burner.
- **NATIONALLY ADVERTISED.** The **QUAKER** name . . . the advantages of **QUAKERTROL** are nationally advertised.
- **FACTORY ASSEMBLED.** No refractories or combustion chamber to build.
- **EASILY INSTALLED.** No installation headaches. Well illustrated installation manual shows how to install the **QUAKER** in a few hours.
- **PRICED TO FIT THE MARKET.** Priced for the pocketbook of the small home owner.

QUAKER *Conversion* OIL BURNER



**EXCLUSIVE
U. S. SALES AGENT**

COMFORT EQUIPMENT CORPORATION
910 S. Michigan Blvd., Chicago 5, Illinois
Gentlemen
Please send literature and franchise information

Name.....
Address.....
City..... State.....

COMFORT EQUIPMENT CORPORATION

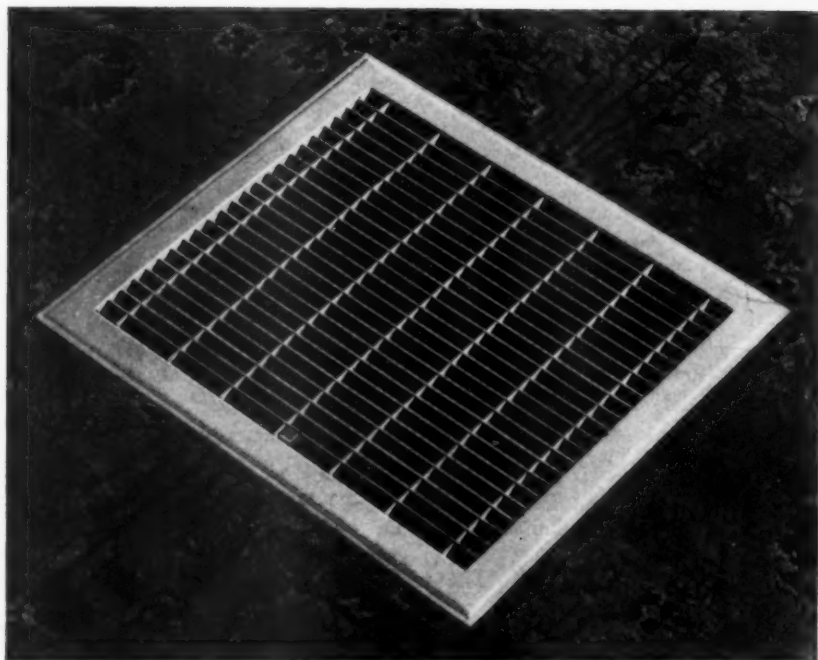
910 South Michigan Avenue • Chicago, Illinois

Manufactured by **QUAKER MANUFACTURING COMPANY**, 223 W. Erie St., Chicago 10, Ill.

DURABILT

*Cross-Locked for
SUPER STRENGTH*

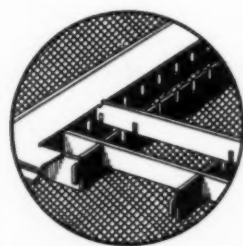
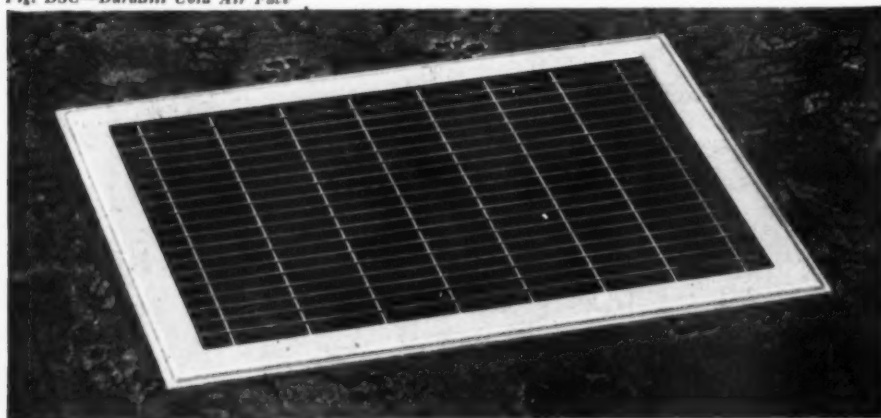
*Floor
Registers
and
Cold Air
Faces*



The DuraBilt is based on the best and simplest engineering principle ever devised for this type of register. These registers and intakes are accurately assembled, with heavy flat steel, rolled-edge bars, mortised and interlocked at every cross-joint. This grille assembly is forced together on press, and is tenoned and locked tightly into welded and reinforced frame, making a highly rigid and durable construction. Open area is 81%. Narrow mesh is

standard for all sizes. The 7/16" by 1-15/16" opening is heel-proof, excludes small objects such as chair legs, and tends to conceal the register box interior. Equipped with Auer exclusive patented spring tension deflector adjustment, easy to operate, non-slipping and positive. For structural strength far beyond the requirements of normal service — use DuraBilt Registers and Intakes.

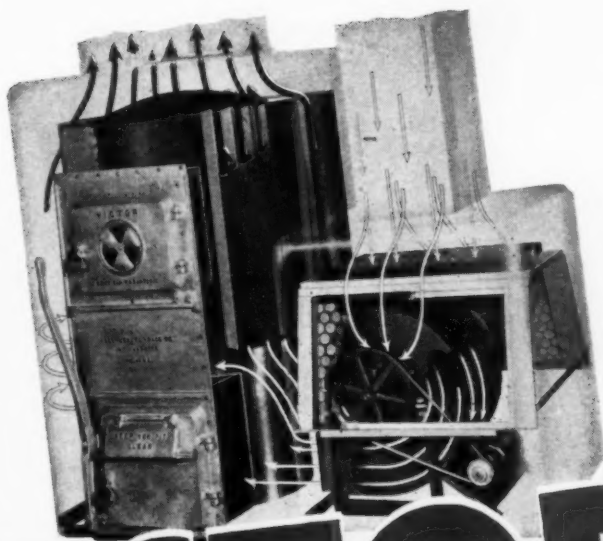
Fig. DSC—DuraBilt Cold Air Face



Write for complete Auer Register Book illustrating and listing all types and models for both air conditioning and warm air systems. Special Grille Catalog also sent on request.

THE AUER REGISTER CO., 3608 Payne Ave., Cleveland 14, Ohio

Auer **REGISTERS**
& GRILLES for AIR CONDITIONING & GRAVITY



With
PATENTED
Fuel-Saving
HEAT RADIATING

FINS

VICTOR

COAL-OIL-GAS FURNACES

Built to Give **SATISFACTION**



MORE HOT METAL HEATS MORE AIR

The additional metal furnished by VICTOR FINS in the 24-inch furnace adds 57½ square feet of heating surface as compared to an ordinary furnace of the same size.

one-piece base ring provides solid foundation for perfect alignment of all parts, with 1½ inch dead air space under ash pit.

RUGGED boiler plate steel construction entirely welded and riveted, eliminates smoke leaks and keeps heat **CLEAN**.

TRIPLE FLUE ECONOMIZER, or radiator, in Deluxe models, provides more effective fire travel; more usable heat from less fuel. Easily cleaned through separate cleanout door.

AUTOMATIC DAMPER control in the Three-Flue Radiator provides direct draft when feed door is open. Closes by gravity when door is closed. Eliminates smoking through the feed door when fueling.

Plus the exclusive, patented, Victor Heat Radiating FINS.

DEALERS Investigate VICTOR

Sell this complete furnace line, famous since 1890. Exclusive features, known quality, make sales easier. Increased production is permitting us to accept a few new accounts. Write us about yourself . . . we'll tell you about VICTOR.

FURNACES • OIL BURNERS • STOKERS • GAS BURNERS • BLOWERS • ACCESSORIES

HALL-NEAL FURNACE Co.

VICTOR Quality Furnaces Since 1890

1322 N. CAPITOL AVENUE • INDIANAPOLIS 7, INDIANA

KITCHENS THAT KEEP THEM SMILING



THERE'S lasting satisfaction for your customers — and added profit for you — in kitchen equipment made of ARMCO Stainless Steel.

In sinks and work surfaces this gleaming, easy-to-clean metal assures years of dependable service. Strong and durable, as well as beautiful, it resists corrosion, scratching and denting. And because it is solid metal all the way through, there is no plating to wear off.

Experienced sheet-metal men find ARMCO Stainless easy to shear, work, weld and solder. No

special equipment is needed, and when the work is done you'll be proud of it because it will be a fine-looking job that your customers will like.

You may not be able to get all the ARMCO Stainless you could use on these jobs now, but you *can* start paving the way with prospects for the time when you can. Meanwhile, keep in touch with your ARMCO Stainless Distributor. The American Rolling Mill Company, 401 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.



THE AMERICAN ROLLING MILL COMPANY

- SPECIAL-PURPOSE SHEET STEELS
- STAINLESS STEEL SHEETS, STRIP, BARS AND WIRE



True Indoor Comfort is built right in

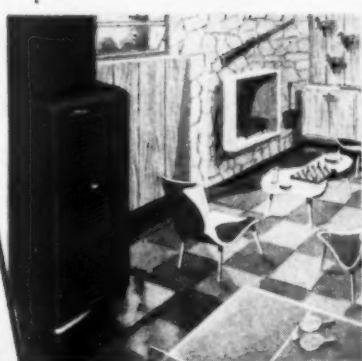
—when your home has a Mueller Climatrol System
to condition and handle air for "climate control"

One of your most important home-
planning steps is selecting the right
system for Indoor Comfort! True
Indoor Comfort depends on the
condition of the air in your home.
There's who your best choice is
Mueller Climatrol, basically de-
signed to condition and handle air
for "climate control."

It's a high standard of In-
door Comfort when you choose
Mueller Climatrol—and you have
a low step to which future air-
conditioning developments can con-

ditionally be added in years to come.
The complete Mueller Climatrol
line includes the right size and type
for your exact needs, whether you
are building or modernizing. Each is
specially designed for efficiency with
a specific fuel—gas, oil, or coal.
Each is smartly styled in the modern
manner, engineered for maximum
comfort, convenience, and economy.

Mueller's 90 years of specialized
experience assures certain satisfac-
tion when you choose a modern
Climatrol System for your home.



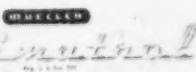
Climatrol gives you just
what its name implies:
"Climate Control" through conditioning
and handling air—for True Indoor Comfort

There is no mystery about comfort. The air in your home is
the most significant factor — you simply install a Mueller
Climatrol System — basically designed to condition and handle
the air — and you know your choice is sound.

Selecting the right system for Indoor Comfort is important.
When you choose Climatrol, you assure yourself of the highest
degree of home comfort — and you have a system to which
future air-conditioning developments can be added.

Whether you plan to build, buy, or modernize — there is
a Climatrol System to fit your home. Each is specially
designed for efficient operation with a specific fuel — gas, oil,
or coal. Each is smart and modern in appearance, and en-
gineered for the utmost comfort, convenience, and economy.

Mueller Climatrol — backed by a 90-year performance
record — assures the certain satisfaction of True Indoor Comfort.



It's impossible to furnish your Climatrol
System. However, if you need additional infor-
mation, see your local dealer or write —
L. J. Mueller, 2010 W. Oklahoma Ave., Milwaukee 7, Wis.



Home planners choose Climatrol
— for comfort and beauty both

Climatrol gives you just what
its name implies: "Climate
Control" through condition-
ing and handling air — for
True Indoor Comfort. Each
system is designed
specifically to air con-
ditioning developments for
your home.

Attractive styling and
economy of Climatrol
are in harmony with
ideas for basement
comfort. Wouldn't the smart
choice above be a de-

lightful addition to the living
pleasure of your home? It's
one of many exciting possi-
bilities — when you choose mod-
ern Climatrol for your home!
Each Climatrol model is
designed for efficiency and
economy with a specific fuel
— gas, oil, or coal — and
backed by Mueller's 90-year
performance record.

Let your nearby Mueller
Comfort Merchant recom-
mend the right size and true
Climatrol —



These Mueller salesmen make regular calls for you

They are part of the strong national adver-
tising campaign that enhances your position
as a Climatrol "comfort merchant."

It's almost impossible to make a "cold call" on
Mueller Climatrol — thanks to the consistent adver-
tising which for years has kept the Mueller line fore-
most in the minds of people interested in building,
buying, or modernizing a home.

This national recognition and acceptance means that
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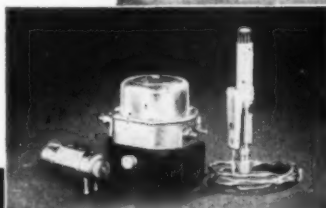
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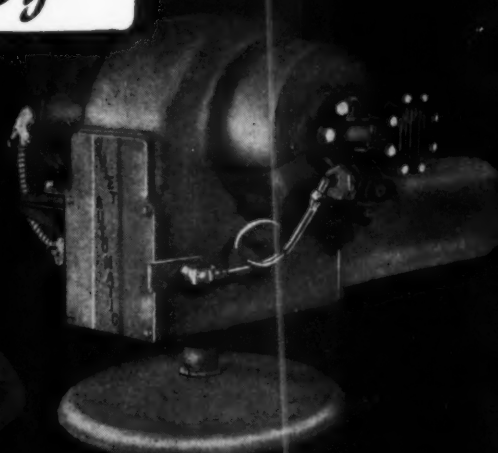
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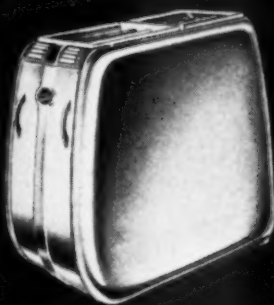
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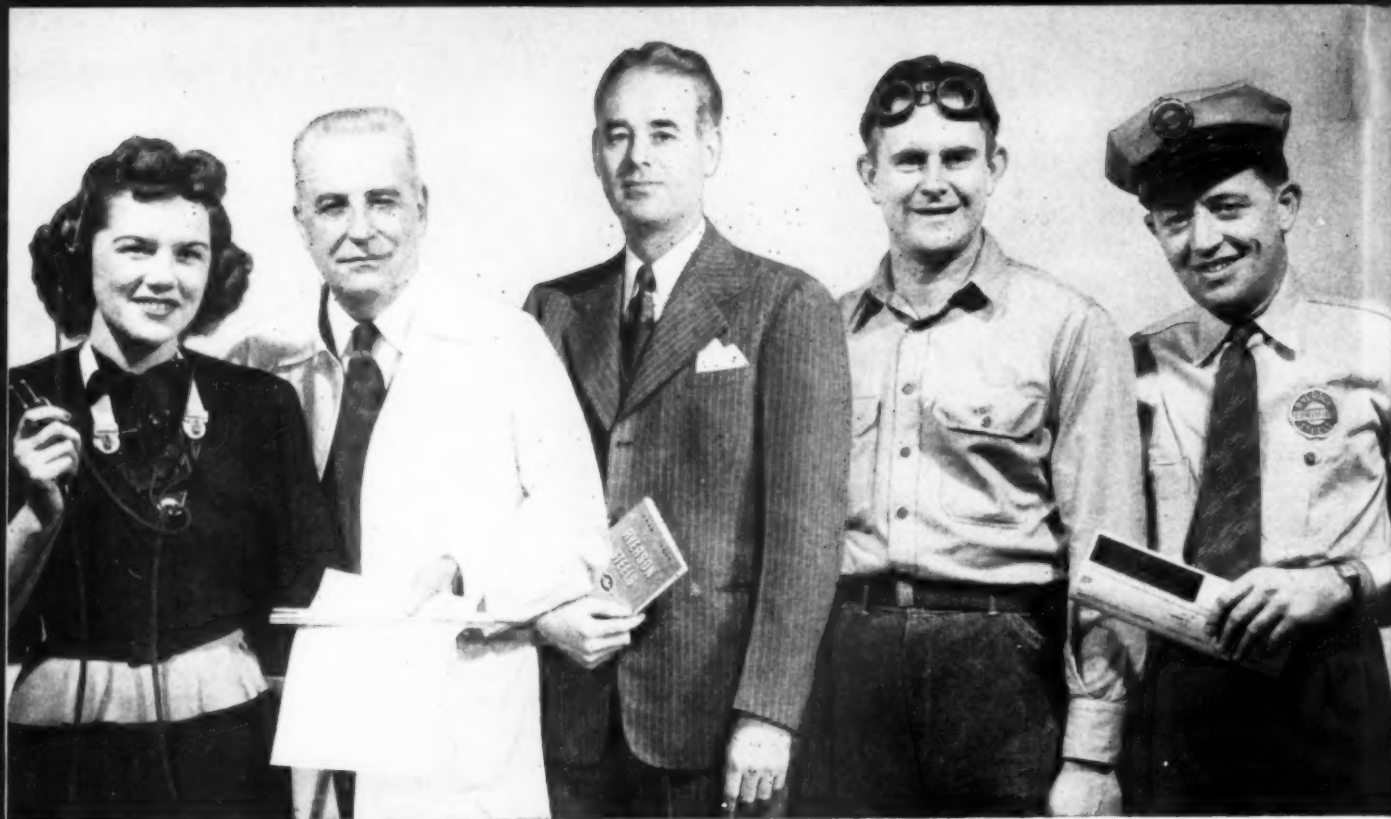
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AMERICAN ARTISAN

RESIDENTIAL
AIR CONDITIONING
WARM AIR HEATING
SHEET METAL CONTRACTING

Let's Take the Hooey Out Of Panel Heating!

IN the October, 1946 issue of AMERICAN ARTISAN there appeared an article presenting some basic principles of warm air panel heating. In each issue since—November, December, January, February, March—there has been an article on warm air panel heating. The November article was a continuation of basic principles—all the articles since have been actual test results of operating installations. Unless unforeseen delays occur, there will be one warm air panel installation description of actual tests in every issue of the ARTISAN during 1947.

This program is not mere happenstance. It springs from the deep seated conviction of ARTISAN editors that warm air panel heating is a subject worthy of serious consideration by every member of the industry—manufacturer, dealer, engineer, salesman, and that up to now a great deal of the information released on the design and installation of panel heating is mostly a lot of hog-wash.

So that this last statement will not be misunderstood, we should explain:

(1) Much too much of the publicity on panel heating up to now has been released by interests which have their own special axes to grind with the result that some fact and a lot of fiction have been mixed together into a conglomerate mess which is short on factual results and difficult of analysis.

(2) Panel heating design was given early impetus by individuals who saw in "radiant" heating a subject so mathematically profound that few persons were capable of understanding it and, accordingly, much of the early publicity was inextricably tied up with equations several inches long and terms so new that few understood the subject. The result of all this was to make most persons mistrustful of the whole subject and to make many others skeptical of panel heating's practicability.

AMERICAN ARTISAN believes panel heating can be stripped of this false and misleading conception—that panel heating is no more complicated than convection heating—*unless the person deliberately wants to make the subject profound*—and that from a relatively few principles satisfactory panel systems can be designed. The articles which have been run and which will run will seek to prove this contention.

Primarily, only a few basic facts are required to

design a panel system. The panel—whether floor or ceiling—can have a surface temperature no higher than 85 or 115 degrees respectively; an entering air temperature to obtain these surface temperatures must be calculated and finally determined by adjustment; an air volume must be determined to supply the necessary Btu's for the heat loss of the room; supply and return ducts or panel spaces must be provided to keep velocities and resistances within reason.

Beyond this, tests as reported in the ARTISAN fail to disclose any good reason why the designer should get himself involved in "mean radiant temperatures," "mean surface temperatures"; "shape factors"; "equivalent conductance"; "rational equations"; "heat balance"; etc.

The two basic facts which have been lost in the confusion are: (1) if warm air is flowing through a large area panel, that panel will give off heat according to the temperature of the air and the type of material making the panel; (2) to obtain maximum heat output the panel must be so insulated that heat loss is minimized. Both these factors are readily understandable and no great departure from convection system design.

Without doubt panel heating is currently of great interest to the home building public—both owner and builder. If any proof is needed—one concern offering home plans at \$5.00 has sold more than \$800,000 worth of plans and report a majority of their customers want panel heating and interest is increasing. Up to now this concern has included plans for hot water panel heating only—expressing a fear of warm air panel heating.

Satisfactory panel heating with warm air is not a difficult design or installation problem. Whether or not panel heating supersedes convection heating should not worry our industry—there's the same equipment; almost as much sheet metal work; the same controls and if ARTISAN tests are any criterion there will even be registers and grilles because a supplementary convection system seems to be the combination system which eventually will develop.

We should forget our fears; we should divest our minds of the fearful phraseology which introduced panel heating and get ready to ride popular interest into panel—convection heating, THE heating system only our industry can offer.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Arnold Kruckman's Washington Letter

★ ★ ★ ★ ★ ★ ★ ★ ★ ★



Can We "Contain" Russia?

IN reality, the conflict now going on in Congress over the Budget and the Tax Program is a sham battle. It is what military technicians would call a delaying action. This does not imply that the members of the House and the Senate are deliberately deceiving the people. They are in the same situation as the people are—they don't know what to do in the light of the recent Presidential proposals to "contain" Russia. They know the program to stop Russia on the frontiers of Greece and Turkey, and in Korea, will cost at least a billion dollars simply as an opening move. Obviously, it will cost far more, infinitely more, than \$400,000,000 in Greece and Turkey, and more than \$600,000,000 in Korea.

Possible Cost Tremendous

Senator George M. Malone of Nevada recently estimated the opening gambits against the Soviets will cost from \$5,000,000,000 to \$10,000,000,000. And that is merely the initial expense. It takes little imagination to perceive that as the enterprise develops it will absorb time and money—money that must be supplied by you and by me through the taxes we pay to the Federal Government Treasury, directly and indirectly; in addition, it will force the States, the Cities, the Counties, and other local political subdivisions, to engage in unavoidable activities and expenses, which again we must pay through the taxes we place in the local treasuries. Congress is distressingly conscious that all these potentials are not consistent with a Budget ceiling and with tax reductions. Moreover, Congress also feels as you do that there is no immediate answer to the question; where will we get all the money? We are, unquestionably, the richest nation in the world by reason of the high level of our human resources and resourcefulness; we transmute our tangibles and intangibles into more multiples of wealth than has any nation of the present or the past. We are geographically vast, and we have great natural re-

sources; we have evolved the greatest industrial machine the world has ever seen. But our timber, metals, minerals, products of field and factory, are not illimitable. There are clear signs that some of our metals are running out, some have virtually disappeared; our fuels are not so bountiful that we can continue to use them without thought and consideration; the experts tell us we could easily bring our timber supply to a dead-end. The greatest problem, however, these people in Congress see ahead, under a "containment" adventure, is the human problem. It is not solely the reluctance of young and old to go into another world war, with its far more monstrous horrors and the prospective annihilation of civilization on the greater part of the globe, but it is the effect upon the daily life of the people in business, industry, in all the activities of our economic and social existence.

Danger to Democracy

The members of Congress see that a developing war economy would mean—more and more controls; more regimentation; more centralization in Washington, probably even greater centralization than we had during the recent war. They are conscious that this effort to stop the totalitarians may rapidly transform our Democracy, dedicated to the preservation of human dignity, into another form of Totalitarianism—not so much deliberately planned, but a Totalitarianism which could not be shaken off after it is once firmly imposed by circumstances rather than by design. Above all, they are at this time unhappily impressed by the lassitude that is creeping over many business people and workers, who are getting tired and apathetic as the burden of taxes increases. For instance, there is a \$100,000 business concern in Kansas owned by a father and son. Last year it earned \$20,000 taxable income. After all taxes were paid the profits were less than \$8,000. We are told here that many businesses such as this, larger or smaller,

are folding up, not because they have failed, but because the operators are discouraged and see no reason to put forth effort simply to support Government treasuries. The owners either quit and live on what they have accumulated, plus the jobs they may get; or they go into the market frankly as workers of one kind or another. In a sense, the Congress members realize what is happening parallels what happened when the Roman empire reached the same stage of development. Rome, at home, was an agricultural economy. In its healthiest, most vigorous days, it was made up chiefly of many small farms and farmers. Toward the end, when its power had extended all over the known world, and its great armies occupied vast areas beyond Rome, the taxes became insupportable and the wealth of the few, out of balance. As a result the small farmer became discouraged and tired. He sold his farm to the person of great wealth and he either went into the city to live indolently and unhappily, or he sold himself with his farm in order to obtain "security." When he sold his services with the farm, he became known as a "villein," something human that went with the land, neither quite slave nor quite free. The great estates, integrated from the small farms, took on the name of villas, which still survives in our language as a designation for the homes of leisure classes.

The members of Congress frankly will tell you, off the record, that they fear the still greater burden of taxes necessary when the "Stop Russia" program is put into full operation, will kill American initiative; and that the time may come when Government, under one label or another, will really be the operator of most of the industry of the nation because Government would control the wealth of the nation, and would allocate the wealth.

Construction of Bases

The essence of this thinking has appeared in the debates in the Senate and in the House. The members of Congress frankly say they do not know the answer; but they almost invariably say the people should be told all the facts, clearly and completely, not piece by piece. The piecemeal technique is designed to draw them unwittingly into adventures whose implications and magnitudes they could not understand, unless they know all the story, the ultimate purpose of the plan. Most of the members of Congress apparently feel that when the people understand, the collective intelligence will help to find the answer. To accomplish this end, the Nevada senator, George W. Malone, one of the outstanding engineers of the nation, the other day discussed, in Congress, the proposed Russian adventure, with entire candor, and in detail. He said "It is understood help to China, in order to 'contain Russia,' will follow Korea; and that we intend to build a great naval base at Singapore, probably also at other points along the China Coast or the Asiatic waterfront. The plan also includes dominance in Iran, Arabia, Syria, Palestine, Italy, and to attain as much control in Europe at key points as is essential for the purpose. Last week we made a treaty with the Philippines which gives us the right to build harbors,

military bases, air bases, fortifications, and many other kinds of offensive and defensive works in all parts of the islands in approximately twenty areas. About half these installations, whose building has begun, are in absolutely new locations.

"The Theory (of Containment) includes the purpose of establishing industries wherever we come to the aid of a country. Even Germany, it is hoped, may be launched on a light-industrial production program. This will all be done with our money collected from our own taxpayers, and will be guided by our technicians, business executives, trained administrators, and financiers. All these countries have an extremely low living standard. Our country will be in the principal market for their products. This part of the program, if successful, will tend to lower our wage and living standards when dumping begins. It is also wise to emphasize that our resources are running short, and that the policies of this Government have practically stopped the investment of venture development capital in our mines, forests, and fuels.

"This containment program will drain us of human resources, mental energies, and most of our physical resources of mine, forest, and field. We are playing into the hands of the Russians by exhausting ourselves. When a certain point of exhaustion is reached, not only will our physical resources be depleted, but we will be so terribly taxed that people will reach the discouraged conclusion: 'What's the use to work purely for the tax collector who gathers in his money to support Government's enterprises?'

"The Program will, and is already, recreating a war economy.

"The foreign demand will take United States goods abroad which we need at home. Replenishment industrially and by the consumer inevitably will be delayed. Machinery and materials we need here for our capital plant and equipment will go into foreign countries.

"We must have controls, under this program, to speed production of goods needed abroad. The Government must have controls to make the necessary allocations between foreign and domestic needs, and the Government must place controls on prices, marketing, storage and transportation. Our armed services will buy enormous quantities of many materials and equipment. This means new United States industrial mobilization."

Budget Cut Questioned

With the foregoing illumination you may understand why we do not take too seriously the quarrels between Congressmen Knutson and Senator Taft as to whether the budget should be cut \$6,000,000,000, \$4,500,000,000, \$3,896,000,000, or any other figure. No matter whether they solemnly decide on one equation or the other, and whether reductions are retroactive in July or January, we feel they will all go back again very soon. When and if the budget ceiling limitation is passed, it is generally assumed it will be 33 billion. The impression in Congress is that the President would veto any greater cut. This will make the cut

(Continued on Page 140)

How To Reduce Payroll Taxes

Under Merit Rating* [Part 5]

Where a person who is out of work due to a labor dispute obtains an *intervening job* and loses that, there is some question as to whether he is still barred from benefits because of the continuing labor dispute in the first employer's company. The answer depends on what kind of intervening job the claimant took after first becoming unemployed. If it was a *bona fide* job which was intended to be permanent, the claimant relieved or "purged" himself of the original labor dispute disqualification and can draw benefits. This rule would apply even though the claimant loses the new job after a short period of time.

But if the new job lost by the claimant was: (a) not *bona fide* and was actually taken to relieve the claimant of the labor dispute disqualification or (b) merely temporary, casual or transitory in nature, or (c) not the claimant's usual occupation, the claimant will still be considered "unemployed because of a labor dispute" as long as the dispute continues at his first and regular employer's company.

4. *When does a labor dispute end?* A labor dispute is usually considered to be ended when the parties come to an agreement. Thereafter, employees who were out of work because of the strike *become entitled to benefits* (if they meet the other eligibility requirements) *until such time as operations actually resume.*

When a labor dispute is submitted to a court, board, arbitrator, etc., for settlement, the controversy is usually considered over when the *decision* is made, even though compliance doesn't follow immediately. If any discharges result, as usually happens in cases of jurisdictional disputes, the unemployment of the discharged individuals is not considered due to the labor dispute, unless the losing union continues the dispute.

A labor dispute is terminated if an employer winds up the business or *removes the plant* to another state. Unemployed workers are thereafter not disqualified "due to a labor dispute."

5. *Duration of disqualification.* The disqualification applies as of the first day of unemployment due to a labor dispute. In all states except Louisiana, Pennsylvania, New York, Rhode Island and Tennessee, the disqualification continues as long as the labor dispute, and terminates when the labor dispute ends.

However, even though the labor dispute continues, the disqualification may end if:

a. The employee returns to work. He is no longer unemployed, and will not therefore be disqualified if he subsequently becomes unemployed for reasons other than the dispute.

b. The employment relationship is ended.

c. The worker takes a job elsewhere during the period of disqualification.

d. A new and independent cause of unemployment intervenes—as when the employer moves to another state, or the industry's usual slack season sets in.

6. *Workers exempted from disqualification.* Most states provide claimants with an out from disqualification if they can prove that they were not involved in the labor dispute that causes their unemployment. The usual provision requires the claimant to show that:

a. He is not *participating in, financing, nor directly interested in* the labor dispute which caused his unemployment. Membership in the union is generally sufficient to disqualify him, even though he disapproves of or does not himself actively participate in the dispute.

Where a union acts as an official collective bargaining agent for all employees, both union and nonunion employees are considered bound by the union's acts and disqualified.

Where a local union affiliated with a central union organization supports the central union in a labor dispute, members of the local union who become unemployed because of the dispute will be disqualified even though they, individually, do not engage in the dispute.

Striking, picketing, engaging in sympathy strikes, and accepting strike benefits constitute participation in the dispute.

In most states, refusal to cross picket lines is deemed to be sufficient participation in the dispute to warrant disqualification from unemployment benefits.

Most states hold that where the wages, hours or other working conditions of an employee will be affected favorably or adversely by the result of a labor dispute, the employee is directly interested in the dispute even though he isn't a member of the union and is opposed to the strike.

b. *The claimant must show that he didn't belong to a grade or class of workers* participating in, financing or directly interested in the dispute. A claimant is *disqualified* if he (i) performed work which is the same as or similar to that performed by those involved in the strike; or (ii) performed work *closely related* to or interdependent with the work of those involved in the dispute; or (iii) was *paid on the same basis* as those involved in the dispute.

What to Do

If a labor dispute results in the unemployment of workers, notify the state agency. The circumstances may be such as to justify benefit payments to claimants, but you can avoid unjustifiable claims if the facts

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of your case will support arguments along the following lines:

1. If all employees belong to the same union or have the same bargaining agent, they are all *participating* in the dispute and will benefit from it.

2. If there are two unions involved, one striking and the other refusing to cross its picket lines, the non-strikers should also be disqualified because they are conducting a *sympathy* strike in support of the strikers; they are *participating* in the dispute by their voluntary refusal to work; they are *directly interested* in the dispute since they will benefit from any settlement; or they belong to the *same class* or grade of workers as the strikers.

If you have no dispute with your employees, but a picket line is thrown around your plant by striking workers of another company, *it is possible that workers who refuse to cross the picket line will be granted benefits*. The labor dispute disqualification relates to disputes *at the factory*, establishment or other premises where the worker is employed. However, it may be possible to present a case for disqualification on the ground that the workers have *brought* the dispute to your establishment.

Certain Payments Disqualify

Workers who receive certain types of payments are usually disqualified, partially at least, from unemployment benefits. Some typical cases:

1. *Dismissal pay*. In most states, a person who has received (a) wages in lieu of notice, or (b) dismissal pay, separation or termination allowances is either totally or partially disqualified for benefits for the weeks covered by the wages.

2. *Vacation pay*. Usually a person who is receiving vacation pay is not eligible for benefits for the weeks covered, because he is not *unemployed*.

3. *Pensions and relief*. A person who receives a retirement pension from his employer, union, or insurance company is usually *not* disqualified. However, disqualification is imposed in Alabama, Connecticut, Indiana, Iowa, Kentucky, Minnesota, Missouri, Nebraska, New Hampshire, South Dakota and Texas.

Persons receiving old age benefits from the federal government are disqualified in most states, usually by reduction of the weekly benefit by the amount of the payment.

Receipt of old age assistance pay from a *state* does *not* disqualify from benefits. Nor do payments from a charitable or relief agency.

If your state does not disqualify for pension payments, the claimant may nevertheless be ineligible for benefits on other grounds—he is not able or available for work, or because of voluntary leaving, etc.

You will be the *only* person who knows whether dismissal, vacation, pension or other disqualifying payment was made to an ex-worker. It is up to you to notify the agency of this fact, explaining the *type* of payment made and the *period* it covers. If practical, try to tailor such payments to the pattern of the disqualification as it exists in your state. This action will protect your merit rate because it may reduce or even entirely eliminate any charges against your account.

4. *Workmen's compensation payments*. In most states (see p. 14), receipt of compensation by an individual for disabilities in connection with his work results in a disqualification, usually a reduction of the weekly benefit by the amount of the payment.

5. *Unemployment benefits*. In almost all states a person receiving other unemployment benefits—such as GI "readjustment allowances," is disqualified for the week he receives the benefit.

A veteran claiming state benefits on the basis of wages earned before he went into service must first exhaust his rights to federal allowances before he can draw state benefits in these states: Arkansas, California, District of Columbia, Florida, Hawaii, Indiana, Maryland, Massachusetts, Michigan, Minnesota, North Carolina, Pennsylvania, Utah, Vermont, and West Virginia.

Misrepresenting on Claim

When benefits are improperly paid to a worker, whether through error or fraud, the agency will attempt to recover the payments and will correct erroneous charges against your account.

Where the worker has misrepresented facts in order to obtain benefits, most states specifically disqualify him from benefits for periods ranging from one week to one year, with a further penalty of reduction of benefits or cancellation of wage credits.

Don't let your merit rating account suffer from fraudulent or erroneous benefits. When you're notified that a former employee is seeking or receiving benefits, give the agency all the information you have about his benefit rights. If an unjust decision is made on the basis of false representations by the claimant, appeal the decision. Exposing the misrepresentation will result in erasure of erroneous charges from your account and may further benefit your merit rating standing by the imposition of a disqualification on the claimant.

Leaving Because of Marriage

Some states disqualify a woman who leaves her work to be married, or because of marital, filial, parental or other domestic obligations.

Under this disqualification, a woman is not eligible for benefits after leaving her work to join her husband in another locality to which he moves the family domicile; or to care for a sick husband, child, or parent; or to set up housekeeping or perform the customary duties of a housewife. The disqualification continues until she once more enters the labor market and starts actively searching for work.

This disqualification affords great protection for your account—particularly in those states which also cancel the wage credits of such a worker. But even if your state does not have these specific provisions, you may still disqualify such a worker on the basic ground that she is *unavailable for work* because she has withdrawn from the labor market. Keep this disqualification in mind when noting the reason for the termination, and notify the agency of this fact if a benefit claim is filed. In some cases, the voluntary leaving disqualification may also apply here.

(Continued on Page 148)

More Apprentices, Yes—But Better Qualified Boys Are More Important

By H. R. Bostrom*

Bostrom Sheet Metal Works, Saint Paul, Minn.

THE need in industry for a well regulated apprenticeship program is now, and has been for some time in the past, noticeably apparent. Only in the past year has it been given serious thought on a nation-wide scale. Programs and standards are now in force in some measure throughout the States. The realization of the need for a thorough training period for learners has gripped all industries unlike any other movement in our experience. Any craft or industry not availing itself of the opportunities now at hand, to select and train young men in their respective trades in the skills of their craft, will shortly look back with regrets for passing up valuable time.

The prerequisites of a candidate for apprenticeship are many. He must have: first, the will to learn a trade; second, a background for skillfulness with his hands to assure himself of success in his chosen field; third, an education sufficient to grasp readily the technical subdivision of his craft; fourth, the stamina to carry through the intensive four or five years of training that is usually required; fifth, he should have physical ability to meet all that is normally required of him when he becomes a journeyman mechanic; sixth, a proper attitude toward his foreman, fellow workmen and employer, also toward his position in the shop.

The Employer's Responsibilities

It is the responsibility of the employer to furnish certain assurances before an apprentice is placed in his care for training. He must also have qualifications that comply with given standards. It is necessary for the employer to leave the apprentice under guidance of a journeyman who has proven himself skillful and with some ability to teach the apprentice proper methods of his craft if the employer cannot do this himself. He should be given encouragement and opportunity to attend classes in related subjects of his trade that are conducted by qualified instructors. The apprentice should not be used as a truck driver, handyman about the shop or job, errand boy, or general roustabout, nor should apprenticeship be regarded as a means of cheap labor.

In arranging an apprenticeship program a small representative committee of employers and employees can do the job very successfully. This committee should

be charged with the entire indenture of the apprentice, should set up rules, regulations and conditions of labor along with a progressive wage rate divided into unit hours. The committee should have full control of the training, showing hours for each branch of the trade. The related subject matter should also be subdivided into a progressive course suited to the craft. This joint apprenticeship committee should have the privilege of recommending instructors to school authorities. Instructors should be chosen on the merits of ability only, all other considerations notwithstanding. Other functions should be: interviewing and choosing candidates for apprenticeship, setting up methods of training, placing apprentices in shops best suited for their progressive training (rotate them if necessary), keeping accurate records of each apprentice's progress, determining advances by periodical checking with employer and instructor and by examination, setting up rules for proper discipline and choosing a subcommittee to give final examinations and certify the qualified as journeyman.

Our Industry's Need

In our own sheet metal industry we feel the urgent need of a good and practical system under which the young men desiring to learn our trade can be indentured. Inasmuch as sheet metal work covers such a vast field and is one of the highly skilled trades, the practical men in the industry can see the necessity of an intensive apprentice training program.

It has been debated whether we should have a four or five year program. It appears that up to now a well executed program of four years or eight thousand hours with seven to eight hundred hours of related training has been satisfactory. One must keep in mind, of course, that to turn out good skilled journeyman sheet metal workers it is necessary to have good material. Too often the prospective apprentice is the choice of an employee or employer, either a relative or a friend of one or the other. Very often the prospect for apprenticeship is simply accidental.

One of the duties of the Joint Apprenticeship Committee is to give the prospective candidate an examination to determine as close as possible his qualifications and fitness for the trade. Our industry has chosen them more or less hit and miss, the results have been disappointing in many instances, leaving us with a so-called journeyman of little credit to the trade. No

(Continued on Page 149)

*Member, Apprentice Training Committee, Sheet Metal Contractors Nat'l Ass'n

NEWS SUMMARY OF THE MONTH

Steel Setaside

APPROXIMATELY 305,000 tons of steel will be made available to manufacturers of critically needed housing products in the second quarter of 1947 under a plan worked out with steel industry representatives by CPA. The announced program replaces the formalized priority program previously in operation for housing products. The 305,000 tons is expected to provide sufficient steel for about 300,000 homes in the second quarter of 1947. Included in this tonnage is a sufficient quantity of steel to permit the production of approximately 4,000 steel prefabricated houses during the second quarter.

Members of the Steel Production Industry Advisory Committee endorsed the plan which will be effective all through 1947, and indicated that steel for housing products will be available during the second, third and fourth quarters as readily as it was under the priorities plan which was in force in the first quarter of 1947.

Motor Shipments

CPA announces 1946 shipments of fractional horsepower AC motors totaled 19,546,599 units. Monthly shipments climbed from 873,376 in January, 1946 to 2,117,943 in December.

Despite the accelerated rate of small motor shipments in 1946, the year ended with a backlog of 40,266,000 unfilled orders, or the equivalent of 19 months' shipments at the December rate.

CPA officials declined to forecast how great an in-road may be made in this backlog in 1947. They pointed out, however, that production is still increasing and may reach a maximum of 2,750,000 units a month in the third quarter. At the same time, order cancellations are increasing.

Consumer Spending Shrinking

THAT consumer spending is shrinking in some lines has been indicated recently by scattered price cutting in liquors, movies, cigarettes, apparels; the worst deflation has seemingly occurred in women's apparel and jewelry where decreasing sales have already caused the closing of several small producers in the New England area.

Authorities seem to believe that the recently zooming prices in foods and durable goods have necessitated consumer curtailment in spending for luxury items. Treasury Department figures indicate that consumer savings are now down to about \$12 billions per year as against a \$25 billions rate in 1946 and a \$40 billions peak during the war.

Some of the authorities are saying that not only are people spending savings today because prices are high, but high prices are also caused by people spend-

ing some of their savings for items which they have wanted for a long time.

Contrary to some ideas Treasury and Department of Commerce reports indicate that a worker's wage today buys more goods than it did in 1939. Big wage gains have increased the spending ability of workers in such industries as coal, textiles, construction, lumber, etc., but real earnings are down definitely in the class of white collar and government workers, also teachers, and people living off of pensions, savings, etc.

No figures are available on the increases in executives salaries, but it is known that executives salaries proportionately increased less than wages and the Treasury Department estimates that a \$10,000 executive of 1939 will have to earn in 1947 nearly \$25,000 to be as well off as he was in 1939.

1947 Building Prospects

UNLESS the construction industry prices itself out of its market, 1947 should see a building program costing approximately \$20 billion. On the whole, there will be a plentiful supply or at least a reasonable supply, of such necessary items as lumber, portland cement, structural tile, building brick, asphalt roofing and siding, insulation board, and heating equipment.

At the present moment, the bottle-necks appear to be cast iron soil pipe, cast iron pressure pipe, soft wood plywood, gypsum lath, some types of plumbing fixtures, electric wiring devices, and hardwood flooring. There is considerable doubt that quantities necessary for the program will be met in this last group of bottleneck items and this scarcity may slow up the projected \$20 billion program.

Supply Lines Filling Up

SALES in most industries are ahead of the comparable period of 1946, but recent large price increases in many goods have made these dollar figures misleading. Actual unit volume sales are down in many lines and if this decline continues and price cutting sets in, there may be a surplus of merchandise in many lines. Reports indicate that many manufacturers are catching up on deliveries and instances have been recently reported where heating contractors placing several identical orders with different manufacturers have received a delivery from several manufacturers simultaneously.

Sales and inventories of wholesalers figures recently released by Department of Commerce show stocks of some goods increasing at a faster rate than sales—a circumstance which can fill up the supply lines at an accelerated rate.

Remaining Priorities

PRACTICALLY all priority orders went out of existence on April 1, but there are still one or two regulations which are in effect. After March 31st, ratings in effect will be limited to HHH, HH, AAA, MM, and CC ratings, covering materials or products on schedule A to Priority Regulation 33.

One automatic rerating provision will remain in effect. Producers of any critical building product listed in Table I to Priorities Regulation 28 may convert their old or present rating, if still valid, to a new RR rating after March 31. Note that this rating applies to producers only.

The other ratings listed above are all concerned with the production of housing and are the same ratings for the same types of construction as used previously.

Heating Gas Ban

REPRESENTATIVES of the Peoples Gas Light & Coke Company in Chicago have recently requested that sales of gas for space heating be banned indefinitely for all new Chicago area customers, excepting such customers as are already qualified for the service. It was disclosed that approximately 7,000 Chicago area homeowners are currently eligible to receive gas for space heating, but must wait for a more sufficient gas supply which may be available by next winter (1947-1948).

Perhaps typical of what is occurring in other communities was the Peoples Gas & Light Company report that Chicago expects to get an increase of approximately 50,000,000 cu. ft. per day by next December 1. Of this additional 50,000,000 cu. ft. 14,000,000 will be used for eligible space heating customers; an additional 9,000,000 cu. ft. will be used by new industrial users; 10,000,000 cu. ft. will be used to take care of normal business such as cooking, refrigeration, water heating, etc.; the remaining 16,000,000 must be held as a reserve supply for periods of extra heavy load.

Decreasing Construction Costs

PRODUCERS Council Inc. announces it believes the peak in building costs has been reached and the future trend should be downward. The Council says "While it is possible that the cost of building homes and other structures may drop as much as 20 per cent below 1946 peak, during 1947, the trend will depend largely on wage rates and on the productivity of construction labor."

Escalator Pricing

DUE to shortages and problems with labor, it has become the practice of many contractors to include in their bid or contracts some form of adjustable pricing clause which permits the contractor to increase the selling price of the job according to increases in prices of materials and labor.

But in recent weeks one-sided escalator clauses are

reported to have been attacked on widely divergent fronts, particularly among commercial and industrial buyers. In government contracts, escalator clauses are already on the decline. The advisory committee on procurement policy for the government recently urged the elimination of escalator clauses wherever possible. The principal drive against the escalator clause is coming from manufacturers who now believe their own planning and selling programs are jeopardized by cost uncertainties from suppliers. Three large producers of raw materials and equipment used in building have started to take orders at firm prices again.

Some escalator clauses are today being prepared providing for a decrease in price as well as an increase and buyers are increasingly insisting on the right to cancel if they are dissatisfied with the price at the time of delivery.

Gas Burner Production

NO official report has been released on the production of conversion gas burners, but one appliance manufacturer's association has estimated that 300,000 gas burners were produced in 1946 as compared to 30,000 in 1941.

Ban On Closed Shop

WASHINGTON sources are reporting that a ban on the closed shop agreement is being seriously considered in the drafting of the labor bill now before the house labor committee. The proposal is in the form of an amendment to the National Labor Relations act, making it an unfair practice for labor to strike or use any other form of duress to force an employer into a closed shop contract.

Employees guilty of an unfair labor practice would under the new law, lose their status as employees which means among other things that an employer can fire them.

The committee reports that the proposed provision will not prevent employers from negotiating a closed-shop agreement if the employer prefers to hire only union workmen.

It is also reported that the house labor committee is considering a ban on strikes of an industry-wide nature. Labor will be permitted to strike over wages and working conditions in one plant in one locality, but labor will not be permitted to strike against all plants of one employer where such plants are widely scattered or against all plants throughout an industry.

Weekly Guaranteed Wage

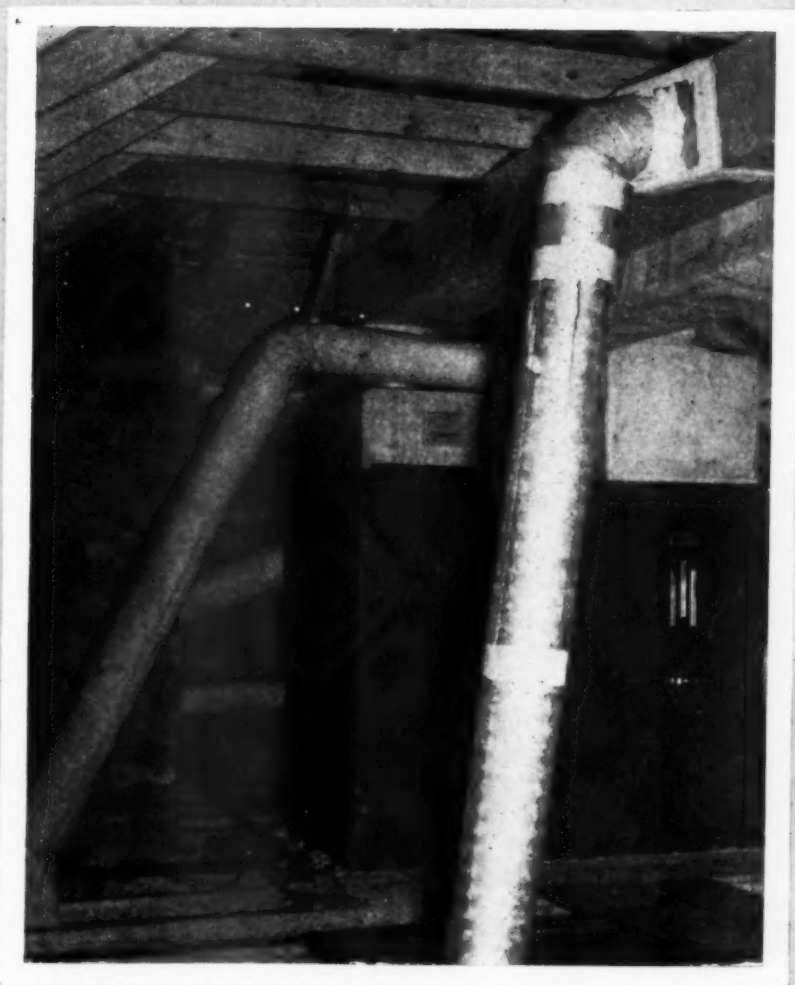
UNITED Automobile Workers (CIO) which formerly was advocating the guaranteed annual wage program for labor, has stopped talking about a guaranteed annual wage and instead of this are asking 40-hours guaranteed work in any week when an employee is called into work. This guaranteed 40-hour week does not prevent layoffs, but it does require 40 hours of pay in any week in which the employee works.

(Continued on Page 134)

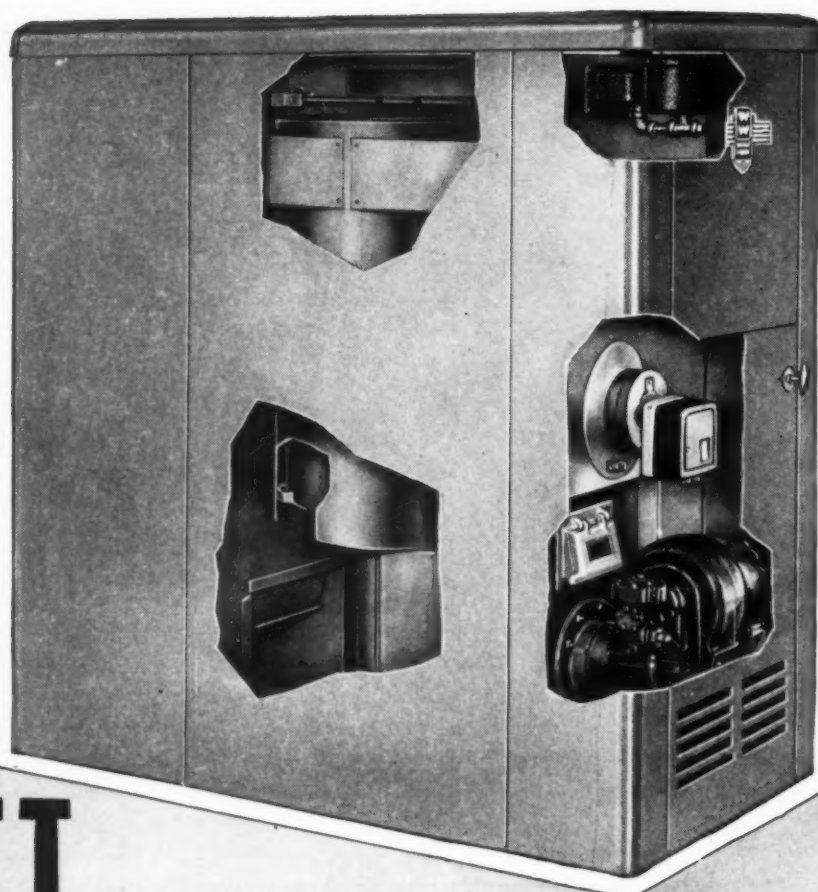


RESIDENTIAL AIR CONDITIONING *Section*

DEVOTED TO HOME AND SMALL COMMERCIAL AIR CONDITIONING



IT'S
WHAT'S
UNDER
THE CASING
THAT
COUNTS



Waterbury

Oil Fired Air Conditioner

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A modern, compact, attractive unit, economical to buy—economical to operate. It is enclosed in an eye-appealing casing that is a compliment to the most modern basement—but what is equally important to you—because of the efficiency and quality of what is UNDER that casing, you are saved annoying service calls.

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1946 Warm Air Furnace Production

THE totals for furnace production that are printed below were compiled by AMERICAN ARTISAN from the monthly reports of the Department of Commerce. At the time these figures were gathered the final summary for the year had not been received from the Commerce Department and there will possibly be some discrepancy between their totals and ours. The reason for this is that the Department adjusts its monthly figures before it makes out the yearly report whereas we were forced to use the uncorrected figures in order to secure a break-down by classifications.

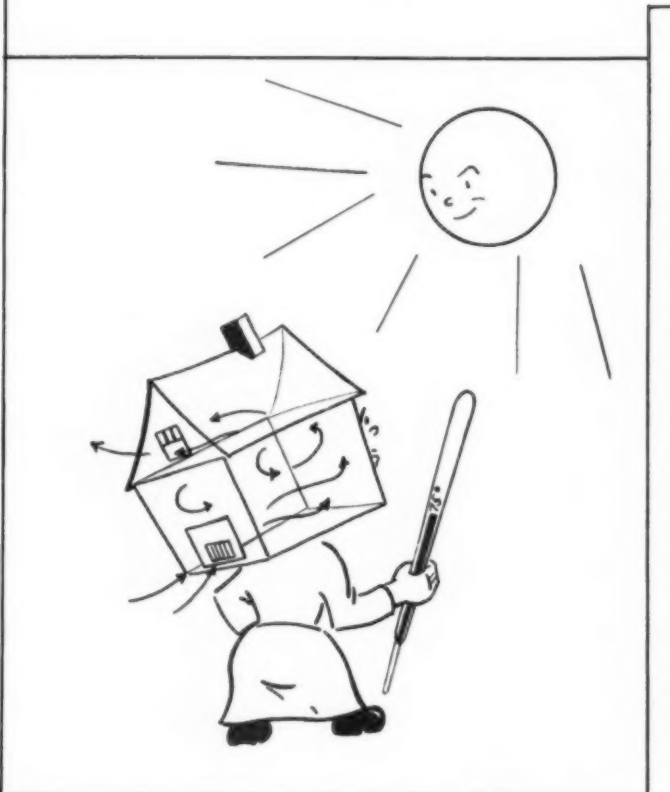
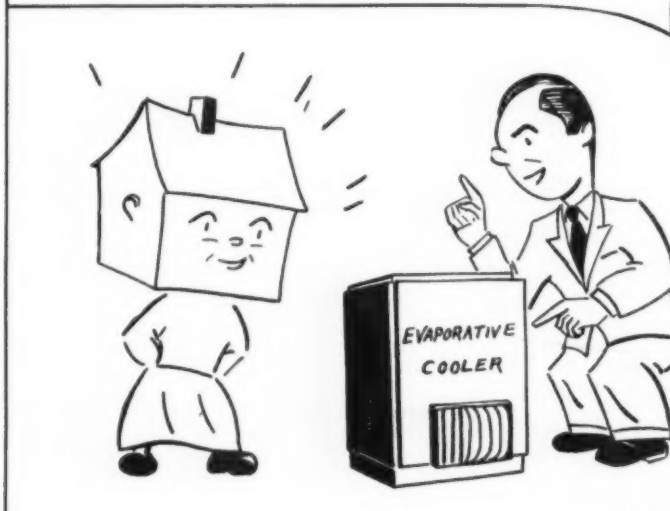
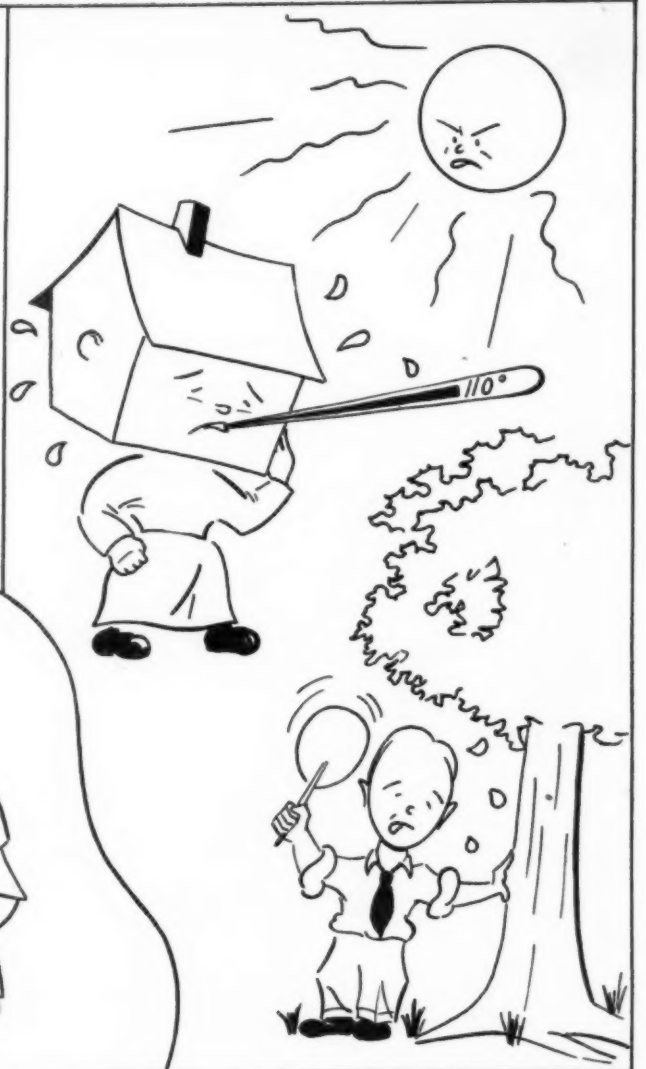
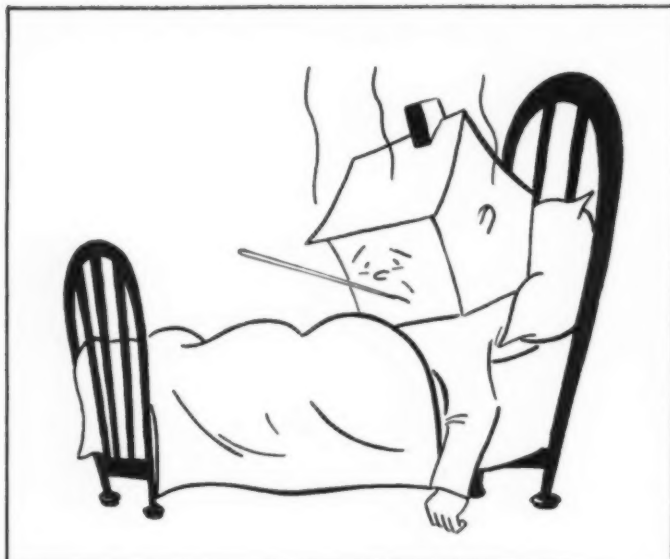
Forced Air Furnaces						
	Coal		Oil		Gas	
	Cast Iron	Steel	Cast Iron	Steel	Cast Iron	Steel
January	82	2,137	3,130	103	1,572	5,127
February	94	1,071	44	2,948	1,648	5,474
March	163	1,862	20	4,030	1,615	9,176
April	254	725	10	3,275	1,717	7,486
May	429	842	21	4,724	2,247	8,209
June	227	677	21	3,757	2,914	7,784
July	159	570	45	4,379	2,586	8,067
August	110	544	24	5,501	2,770	9,542
September	157	1,506	51	8,241	2,948	13,401
October	582	1,760	54	8,628	3,635	16,507
November	159	1,695	73	9,303	3,740	16,646
December	197	1,513	566	10,793	3,600	13,973
	2,613	14,902	4,059	65,682	30,992	121,392

Gravity Furnaces						
	Coal		Oil		Gas	
	Cast Iron	Steel	Cast Iron	Steel	Cast Iron	Steel
January	7528	15,408	....	79	....	2,565*
February	11,445	13,855	....	63	....	2,962*
March	10,527	14,609	....	55	....	5,043*
April	10,771	14,448	....	113	470	3,917
May	12,491	13,017	....	21	200	5,120
June	13,310	15,069	....	362	325	4,891
July	11,735	15,096	....	722	253	5,300
August	15,051	19,901	....	723	906	6,998
September	14,239	24,126	....	550	969	5,621
October	16,474	27,604	....	475	1,020	5,162
November	15,129	30,637	....	499	911	7,792
December	11,144	24,636	....	409	1,024	7,560
	149,844	228,406	....	4,071	6,078	52,361

*These figures were not broken down into types of materials and are not included in the totals at the bottom of the column, but are included in the overall totals.

Total Shipments	Forced Air	Gravity	Cast Iron	Steel
Coal	17,515	378,250	152,457	243,308
Oil	69,741	4,071	4,059	69,753
Gas	152,384	69,009	37,070	184,323

Total Shipments (All Types)	
Coal	395,765— 57 per cent
Oil	73,812— 10 per cent
Gas	221,393— 33 per cent
	690,970—100 per cent



The Case of the Sick House

Patient:
Hattie House.

Complaint:
Hot feeling. Mr. and Mrs. Occupant complain constantly. Mr. Occupant is "knocked out" before his work-day begins. Returning home from work, he finds Mrs. Occupant wilted. She and Little Occupants are hot and irritable. Peace, contentment and mice have fled.

Symptoms:
Miss House is running high temperature. The Occupants' resistance is low. Strong signs of frayed nerves. Mice are missing.

Diagnosis:
Hot house. Summer weather. Epidemic complaint.

Rx:
Take copious quantities of ordinary "outside air." Pull through "Aspen Fibre" pad, of adequate area, kept moist with small quantity of ordinary city water. Force "delightfully cooled" filtered air through hot house. Allow used air to escape freely outdoors again. Continue treatment night and day as required, to obtain relief.

Results:
Hattie House now has that "Spring-time" feeling. Papa Occupant feels like working, as he enjoys a comfortable night's rest. Mama and little Occupants "feel fresh" when papa comes home. Peace, contentment and mice have returned.

Comments:
Complete cure obtained. Case closed.

The Case of the Sick (Hot!) House

By Martin E. Marsalis

Associate Member, A.S.H.V.E.; Member, American Society for Metals;
Owner, American Metal Products Company, Fort Worth, Texas

MY name is Hattie House. If I do say so, I think I am very attractive. At least I look better than some I could mention on this street. My shape is good, for my age, and I must say that the shade of paint I wear is becoming.

But, things haven't gone so well with me lately. Mr. and Mrs. Oscar Occupant, my folks, have abused me something terrible. Seems like the War has changed people so. Imagine them sitting around in our yard of evenings with the neighbors, and making such remarks as: "Old Hattie's as hot as a firecracker." "She doesn't begin to cool off before early morning and we just can't sleep at night." And Mr. Oscar says: "How can a man work when he can't get a night's rest in that old oven?" "Coming home and finding Old Hattie has wilted Mrs. Oscar limp as a rag and the children fussin' is almost more than a man can stand."

And would you believe that the Occupants actually sleep outdoors sometimes? All that was bad enough. But, when my insides grew so hot that the mice slunk away, that was the limit. We just had to call in Dr. A. C. (Air Cooler) Dealer, to see about a treatment for me.

(Dr. Dealer's diagnosis is on the facing page.) Simple, Inexpensive Cooling

When Mankind was placed upon this earth, his Maker, very wisely, gave him millions of tiny skin pores and the ability to evaporate moisture through them. In addition to other benefits, this provides a simple means of lowering body temperature during hot, insufferable weather.

Remember the time when you were hot and "sweaty," or had just emerged from a swim, and a breeze swept over you? Remember the "chilly" sensation you experienced? Accelerated evaporation of moisture from your body, caused by the breeze, was responsible.

Make this simple test: Moisten the back of your hand with the tongue. Blow your breath over moist spot and then over adjacent dry spot. Note "chilly" feeling of moist spot. This will be clearly apparent, *even during a rain.* Air flow, plus evaporating moisture, is responsible.

Everyone is familiar with the relief from summer heat afforded by an ordinary "electric fan." But a simple test with an ordinary thermometer will reveal

that the electric fan *does not* reduce air temperature. In fact, due to heat of the fan motor, a little heat is added to the airstream. But, when the accelerated stream of air from the fan flows over the moist human skin, evaporation of this moisture occurs and body cooling ensues.

The fan furnishes the air, the person furnishes the moist skin, or cooling pad. This sometimes produces a "tired feeling" due to excessive demand made on bodily processes, by the accelerated stream of air.

The electric fan and the human body "team" is a crude type of Evaporative Cooling, under rather poor control, but, it is a combination that has proven acceptable in *actual use, everywhere.*

Evaporative cooling *is not new.* But only in recent years have machines been made which take the burden from the human body and afford better control of the process.

Modern evaporative air coolers are far more effective than the processes for summer cooling provided by nature. Simple, compact units are now available which may be installed, very simply, in any average window. By means of a small copper tube, they may be connected to any convenient garden hose faucet, or by drilling a small hole, to any convenient water pipe. Moisture for the evaporating pad is thus obtained. An inbuilt electric fan supplies air.

First cost and operating expense are very modest, placing them within the budgets of millions. Appearance of the better type units is equal to fine furniture. Cooling units produced by experienced manufacturers are carefully designed and reflect engineering of the most advanced type.

Many manufacturers have entered this rapidly expanding field. However, just as radios and automobiles attracted scores of "get rich quick" operators, in their early days, evaporative air coolers are being offered which "look good" and operate reasonably well, but only under favorable conditions. Well engineered units, on the other hand, will consistently perform under adverse conditions when those of poor design are useless.

To sum up: People everywhere eagerly seek relief from summer's heat, often at great expense. Evaporative air coolers offer an almost untouched source of profit and opportunity to render a much sought after service.

Correct Practice In Oil Heating

Part VI [The Combustion Chamber—The part it plays in combustion—Its importance—How to size it.]

By J. J. Mirabile

Vice President of Engineering—Harold E. Sweeney Corp., Philadelphia

THE combustion chamber is a very important part of the oil burner installation. This phase of the installation has, in many cases, been left to the judgment of the installation men though their knowledge of combustion is often meager. These men, who do not realize its importance, will say that the reason they build a combustion chamber is to protect the furnace castings. This may be true, but the effect the combustion chamber has on the oil being burned must be understood by the oil burner man before he can successfully build a practical, efficient combustion chamber.

Therefore, to properly build a good chamber, one must understand what occurs in the combustion chamber, and what function the combustion chamber performs in controlling the overall efficiency of the oil burner. Briefly, the combustion chamber is the oil burner's silent partner. It will make or break the oil burner's reputation wherever a conversion burner is installed. Therefore, an explanation of the air and oil mixing characteristics of the pressure-type oil burner and a few words on combustion will pave the way to better understanding of the importance of the combustion chamber.

Air and Oil Mixing in Pressure-Type Burners

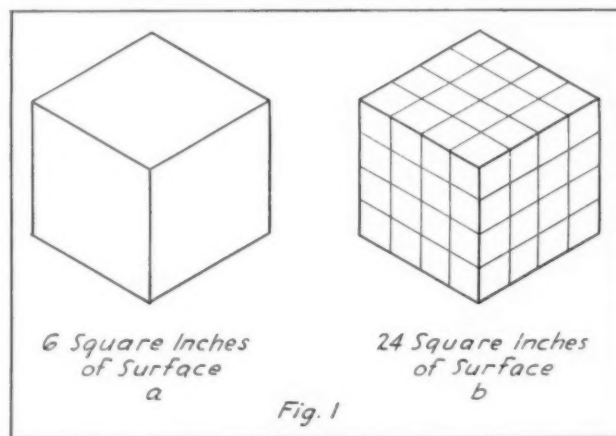
The popular pressure-type oil burner pump maintains approximately 100 lbs. pressure at the nozzle. Its function is to supply a constant supply of oil. The oil flow is from the tank through the filter and strainer to the pump. A small portion of the oil then goes through the pressure-regulating valve to the nozzle pipe. The oil flows under pressure in the nozzle pipe to the nozzle. Some nozzles have a strainer attached to them, which again screens the fuel oil.

The oil enters the nozzle and goes through "swirl" slots to the nozzle orifice. In leaving the nozzle orifice, the fuel oil is broken up (atomized) into very minute particles. These particles are almost as fine as cigarette smoke.

The burner fan supplies air for combustion. The air goes through an accurate air-metering shutter to the air whirl and air cone. The air is supposed to swirl in the opposite direction than the atomized oil is swirling as it leaves the nozzle. There have been many differences of opinion as to whether or not the oil swirls as it leaves the nozzle. However, at the

moment, we are interested in the Oxygen in the air stream. This Oxygen in the air (approximately 21%) must unite in proper proportion with the carbon in the oil to produce combustion. The minute particles of oil unite with the Oxygen and, upon igniting, a flame is formed. This is a chemical reaction and it is called "Combustion." This combustion is speeded up in the presence of heat. This heat roasts out the gases in the small particles of oil, further assisting its chance to unite with the Oxygen present. Therefore, as long as Oxygen and oil are supplied the flame will continue burning.

The finer the oil is atomized, the better opportunity it will have to roast into a gas and unit with Oxygen.



This is caused by the simple fact that the finer the oil is atomized the more film surface will be available.

As an example of the film surface available when the oil is atomized, take something readily visualized, such as a block of wood which measures 1" on all sides (Fig. 1-a). This would be a 1" cube. This 1" cube has a film surface of 6 square inches when it is suspended in the air. When it is resting only 5 square inches of the film surface will be available to the air around it.

Now then, suppose the 1" cube is divided into 64 equal parts (Fig. 1-b). Each part would then be a $\frac{1}{4}$ " square. When the 64 small $\frac{1}{4}$ " squares are floating in the air they have a film surface of 24 square inches. This indicates that by making the 1" cube into smaller blocks the film surface was increased from 6 square

inches to 24 square inches. It is apparent that by breaking the oil into fine particles suspended in air it will have a greater film surface to absorb heat and roast itself into a gas.

The amount of air supplied for combustion is very important. The more air supplied the flame over and above the amount required the cooler the gases, a condition which retards combustion. The flame will be whiter when excess air is present; the best adjusted flame being the one that is almost ready to form smoke. The way to adjust the flame is to cut down the air supply until the flame is starting to smoke, then increase the air slightly, just enough to clean up the smoke.

This method uses the color of the flame, etc., to determine its efficiency. The best way to adjust the flame is by using a flue gas analyzer. This analyzer works in this manner: A measured portion of the flue gas is pumped through a CO₂ Analyzer. This analyzer indicates the CO₂ present in the flue gas. The letter "C" indicates Carbon, the letter "O" indicates Oxygen. The element in the oil that must be burned is carbon, therefore the aim is a high CO₂ mixture.

Here an explanation of CO₂ (Carbon Dioxide) and CO (Carbon Monoxide) is in order. The term CO₂ means one part Carbon and two parts Oxygen. Similarly CO means one part Carbon and one part Oxygen. This last term indicates incomplete combustion because complete combustion is, in theory, formed by

one part of Carbon and two parts of Oxygen. Therefore, to check the efficiency of the flame, take a sample of the flue gas (The products of combustion on their way to the chimney.) into the analyzer and determine the CO₂ available.

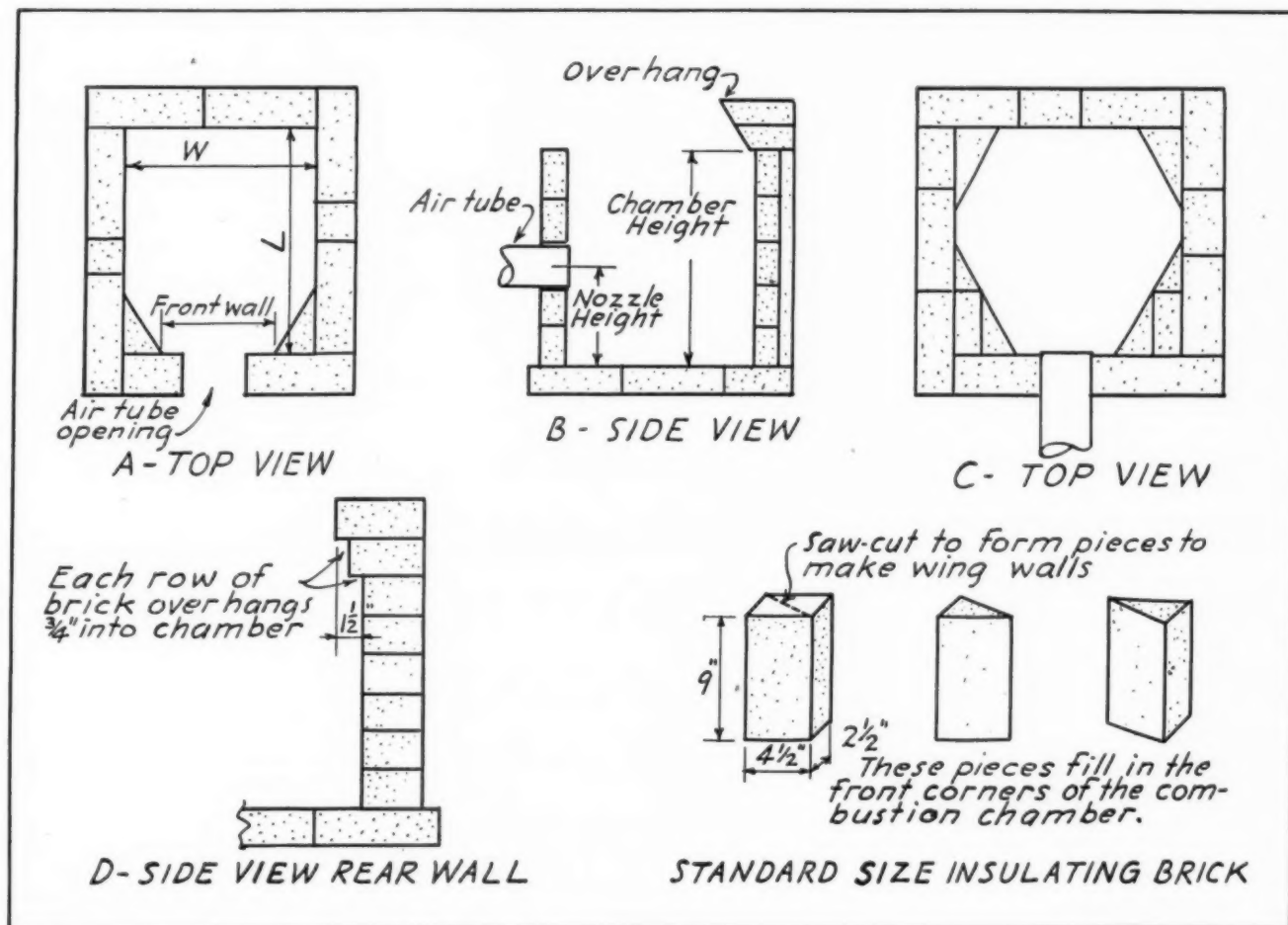
In theory, 15.4% is the maximum CO₂ available in products of combustion. When burning fuel oil, however, 10% to 12% is nearer the practical figure sought in adjusting the flame to obtain the maximum efficiency possible. The finer the oil is atomized, the less excess air will be required, the higher will be the CO₂. However, if the CO₂ reading is below 8%, this indicates retarded combustion and that the flame is not very efficient. If the oil burner is performing correctly its work of mixing the air with the finely-atomized oil, then the oil burner's silent partner, the combustion chamber, may be the cause for the low CO₂. In practice figure approximately 25% excess air to insure the small particles of oil an opportunity to unite with two particles of Oxygen.

The Combustion Chamber

In pressure atomizing conversion burner installations, the combustion chamber is built down in the ash pit to permit higher flame temperatures without the cooling effect of the furnace walls. This, incidentally, increases the combustion volume available and exposes more furnace heating surface.

The combustion chamber should conform with the

Fig. 2



flame shape. This flame shape is not the same with all burners since some burners have a bushy flame, some have a stringy flame, etc. Therefore, before you can successfully build a chamber in which the flame will be evenly distributed, you must know the flame which is characteristic of the burner you are installing.

Bear in mind that the chamber in fitting the flame radiates heat into the flame and assists in roasting the oil and burning it with a minimum amount of air; that if any portion of the flame should strike a cooler surface, the air-oil mixture will be cooled and soot will form up in the furnace flues, etc.

The smaller the fire box, the hotter it will get and the better it will help burn the oil. However, there is a limit to this, because if the box is too small we may not be able to burn the required amount of oil in it efficiently.

A large chamber which is much larger than the flame will cool the products of combustion which then leave the combustion zone without igniting. The heat in these particles of oil is lost up the chimney.

Therefore, select chamber sizes listed in Table No. 1.

Table 1

Gross B.T.U.	G.P.H. Required	Nozzle Size	L Length	W Width	H Minimum Height	C Width of Throat	N.H. Nozzle Height	Approx. Number of Insulating Fire Brick Required to Build Chamber				Front Wall Red Brick	Sq. Inches of Floor Area
								Walls	Floor	Wing Walls	Total		
100,000	1.02	1.00	12"	10"	13½"	6"	6"	24	8	8	40	8	120
125,000	1.28	1.35	14"	11½"	13½"	6"	6"	24	12	8	44	8	161
150,000	1.53	1.50	14½"	11½"	16"	6½"	6½"	32	12	8	52	8	167
175,000	1.79	1.75	15"	12"	16"	7"	7"	32	12	8	52	8	180
200,000	2.04	2.00	15½"	12½"	16"	7"	7"	32	12	10	54	9	194
225,000	2.30	2.25	17"	13"	16"	7"	7"	32	15	10	57	9	221
250,000	2.55	2.50	17"	14"	18"	7½"	7½"	32	15	10	57	9	238
275,000	2.80	2.75	18½"	14"	18"	7½"	7½"	34	18	12	64	10	259
300,000	3.06	3.00	19"	15"	18"	7½"	7½"	34	18	12	64	10	285
350,000	3.56	3.50	20"	16"	18"	7½"	7½"	40	18	12	70	10	320
400,000	4.08	4.00	21"	17"	20"	8"	8"	45	18	12	75	12	357

The above data is based on practical experience. Note that it does not follow any set formula giving specific square inches of floor area per gallon of oil. Experience shows that with some burners 100 square inches of floor area is sufficient to properly burn one gallon of oil without crowding the flame into a one gallon chamber. Also if the 100 square inch formula is used on larger sized chambers, the chamber will invariably be too large and it will require shortening to stabilize the flame. Under good conditions the flame starts one to two inches away from the end of the air cone. However, if the chamber is too long it will cause the flame to float back and forth causing pulsations and an unstable flame. If possible the length of the chamber should not be more than 1½ times the width. The shortening of the chamber is accomplished by building another back wall in the combustion chamber, closer to the nozzle. If the data in the chart is followed the expense of shortening the chamber or building a larger chamber will be avoided. Again it is necessary to know the flame characteristics of the burner being installed.

You will notice that the chambers are slightly longer

in length than width. This is practical on most burners. If the chamber width or length can not be followed on a particular installation due to insufficient space in the ashpit, maintain approximately the same square inches of floor area as shown in the chart showing the chamber sizes. If it is advisable to build a pear-shaped chamber, install wing walls in the two rear corners. If a round or nearly round chamber is necessary, to fit the burner's particular flame shape, cut the insulating brick to suit the conditions. If the chamber shape is such that the chamber is long and narrow, then use a nozzle with a narrow (45°) angle of spray. If the chamber is short and wide, use a nozzle with a wider (60° to 80°) angle of spray. The normal sizes of nozzles carried by most shops are 1.00, 1.35, 1.65, 2.00, 2.50, 3.00, 3.50, and 4.00 gallons per hour. They are stocked in the 60° and 80° angle of spray. A warm air furnace will rarely require a long and narrow chamber which would require a 45° angle of spray. The nozzles are usually within 5%, plus or minus, of their listed specifications.

Terminology and Explanation of Combustion Chamber Data

Table No. 1

Column No. 1: lists the gross Btu heat load which the chamber must develop at the furnace bonnet. To permit the use of round figures the data is based on 140,000 BTU per gallon of oil and 70% overall efficiency.

Column No. 2: lists the gallons per hour required to meet the gross Btu load.

Column No. 3: lists the standard size nozzles nearest to desired size.

Columns No. 4, 5, and 6: list the chamber length, width and minimum height.

Column No. 7: lists the width of the firing end of the chamber called the "throat."

Column No. 8: lists the nozzle height above the floor of the chamber. This is from the center of the air tube down to the top of the combustion chamber floor.

Columns No. 9, 10, 11, and 12: List the number of standard size 2300° insulating brick (2½x4½x9) re-

(Continued on Page 150)

Furnace Installation Time-table.

AS a service to its members the National Warm Air Heating and Air Conditioning Association has compiled a list of figures which give times for installations of gravity furnaces. As indicated by the comments at the end of the article there are factors that enter into these time estimates aside from the more physical time required for the work.

Such intangibles as the attitude of the workers toward their employer and the oft-present union dic-

tates about just how hard and how long the brothers may work are to be considered in the individual application of this time-table. The dealer may take it for granted that these figures provide a good starting point in determining the efficiency of his labor and should he find too great a variation from the table the various phases involved may be analyzed.

In other words the Association suggests that it be used but not regarded as iron-clad.

• • •

Following is a breakdown of the time allowed for the principal divisions of gravity furnace installation labor. The values given are *averages* to the nearest 5 minutes, of the reports made by dealer members of the Association in various sections of the country.

ROUGHING-IN ITEMS, FIRST FLOOR

	hrs.	min.
1. Setting baseboard register head <i>not</i> including carpenter cutting and framing	30	
2. Same as (1) with carpenter cutting and framing included	1	25
3. Setting floor register box <i>not</i> including cutting floor	15	
4. Same as (3) including cutting floor	45	
5. Roughing-in baseboard return air intake	1	5
6. Roughing-in floor return air intake	40	

ROUGHING-IN ITEMS, SECOND FLOOR

7. Running wall stack complete with stack head but <i>not</i> including carpenter cutting and framing	1	45
8. Same as (7) including cutting and framing	3	30
9. Extra on (7) or (8) for not more than 3 ft. jog or cross-over between second floor joists	55	

BASEMENT WORK

10. Setting furnace and casing	5	30
11. Installing and cementing flue thimble	55	
12. Installing smoke pipe <i>not</i> including setting flue thimble, for smoke pipe not more than 3 ft. long	45	
13. Same as (12) for pipe 3 ft. to 6 ft. long	1	
14. Same as (12) with pipe 6 ft. to 12 ft. long	1	20
15. Installing and stripping joints of warm air leader less than 6 ft. long in full basement	1	15
16. Same as (15) with pipe 6 ft. to 12 ft. long	1	30
17. Same as (15) with pipe 12 ft. to 18 ft. long	1	55
18. Same as (15) with pipe 18 ft. to 24 ft. long	2	30
19. Panning joists for return air not more than 8 ft.	1	15

20. Same as (19) 8 ft. to 16 ft.	1	45
21. Same as (19) 16 ft. to 24 ft.	2	10
22. Same as (19) longer than 24 ft.	2	45
23. Installing cross joist box (rectangular pipe) not more than 8 ft. long	2	10
24. Same as (23) 8 ft. to 16 ft.	3	20
25. Same as (23) 16 ft. to 24 ft.	4	45
26. Same as (23) longer than 24 ft.	5	45
27. Setting starter collar, attaching warm air shoe and running not more than 7½ ft. of return air pipe (12" to 16" pipe)	2	10
28. Same as (27) for 18" to 24" pipe	2	45
29. Same as (27) for more than 7½ ft. but not more than 15 ft. of round pipe (12" to 16")	3	25
30. Same as (29) for 18" to 24" pipe	4	20

FINISHING

31. Installing baseboard or sidewall register	35	
32. Installing floor register	15	
33. Installing baseboard return air intake	35	
34. Installing floor return air face	15	
35. Installing hand draft regulator and chain	1	25
36. Cleaning up	1	40

In returning the questionnaire which had been sent out to get the above information, a number of those who responded made comments such as the following which are typical:

"Since the time given for the various operations does not include the time going to and from the job, probably a greater allowance should be made for installing baseboard registers in one-story houses because this requires a trip to the job for roughing-in which would not be necessary if floor registers were used."

"When a helper is used, the work he does will take 30% more time than it would take a qualified installer."

"We find that it costs less to use two good installers (where two men are needed on the job) than to send one installer and one helper."

"We have stopped using helpers; instead we start apprentices on this kind of work."

"The time I have shown for various operations is too long. This is because labor has not been very efficient during the past two or three years. I believe that the efficiency of labor will increase within the next year or two and that the time can be cut as much as 20% on many operations."

Warm Air Floor Panel, Opened To Provide Partial Convection Heating, Heats to -8°F .

By John E. Peterson

Chief Field Engineer, Moduflow Division, Minneapolis-Honeywell Regulator Co.

AN article describing the operating characteristics and actual temperatures recorded as established by tests of the warm air panel heating system in Green's "Solar" home in Rockford, Illinois was published in the December, 1946 issue of American Artisan. The interesting feature of the construction is the tile floor and the provisions for warm air flow through the floor panel. The installation as described in the December issue was a "closed" panel from which no air used for heating enters the structure but circulates through the panel only.

The heat losses of the house were calculated as 48,797 Btu per hour; the gas-fired, forced air furnace was rated at 85,000 Btu input and 68,000 Btu output.

This article describes the results obtained through changes in the system—chief change being the opening of a "slot" in the floor panel so that air, after heating the floor panel, enters the structure for additional heating effect through convection.

It was determined from temperature recordings during a 7-hour interval, from 12:00 M. N. until 7 A. M., January 1, 1946, with continuous burner and blower operation, that the heat emission from the closed panel was approximately 50% of the capacity of the furnace. Downward heat flow from the panel to the ground plus horizontal heat flow from the panel edges and heat storage were investigated and found to be of considerable magnitude roughly accounting for the capacity of the furnace.

The closed system reached its maximum capacity at 8° outside temperature, or at a temperature difference of 62° between inside and outside. This maximum capacity was established by temperature recordings which also disclosed that the closed system could not maintain a room temperature of 70° whenever the outside temperature descended below 8° . Temperature differences between inside and outside for the period described in the December article are replotted in Fig. 1 for comparison with results from tests during the 1946-47 heating season.

A number of ideas were considered for reducing the "loss" of the system so that comfortable temperatures could be maintained at outdoor temperatures lower than 8 degrees.

(1) The floor construction did not permit laying an effective barrier below the tile to retard heat flow without a costly remodeling operation. Since the rate of heat flow downward and heat storage is a function of the conductivity of the materials and the temperature gradient, means to reduce the gradient were considered.

(2) Increasing the cfm sufficiently to reduce the supply air temperature would have contributed toward reducing losses to the ground, but this would have required greater blower capacity than that which the furnace provided, and space in the utility room did not permit attaching a larger blower to the furnace.

(3) A survey of return air temperatures indicated

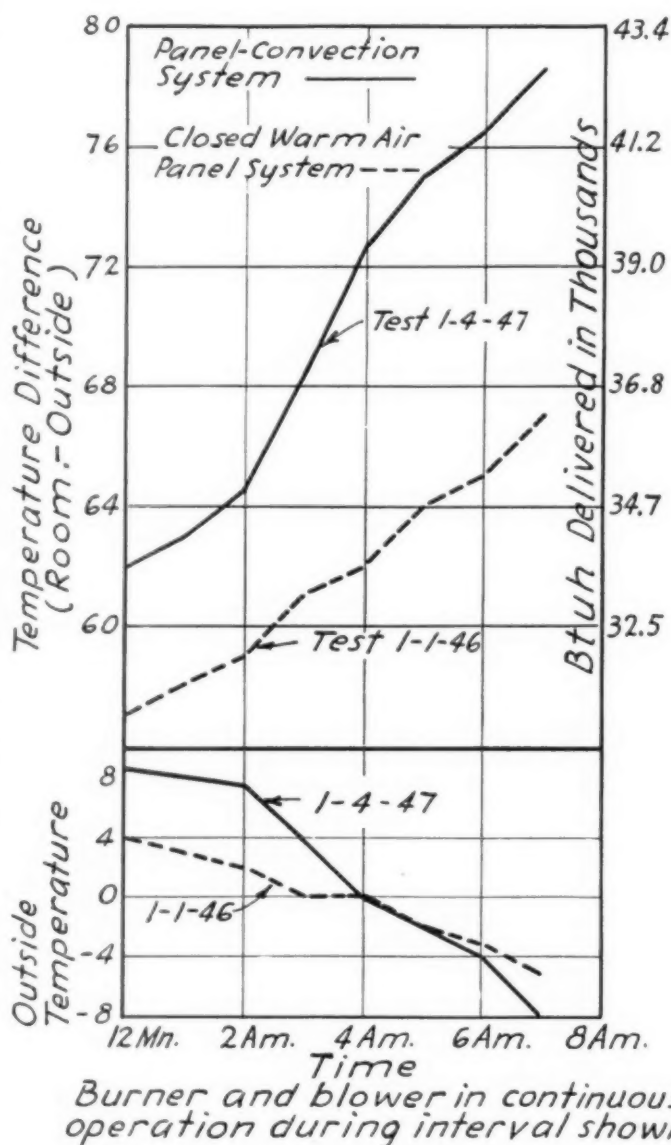


Fig. 1—Comparison of comfort conditions obtained with the "closed" panel and with the panel opened to provide partial convection heating.

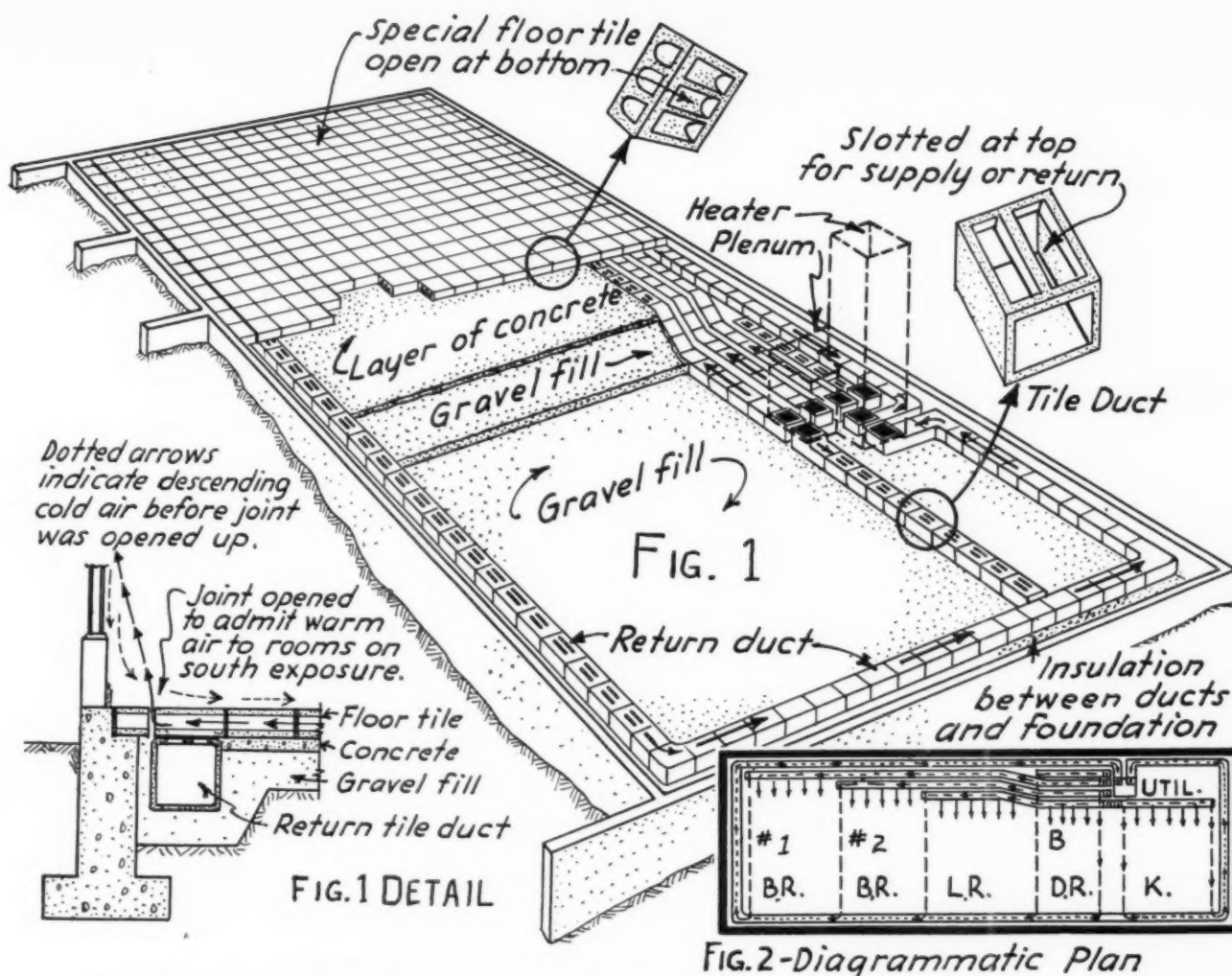


Diagram reproduced from the article in the December 1946 issue showing construction of the floor and—in detail—the means used to open a "slot" through which air from the panel enters the house to provide a combination panel-convection heating system.

an average temperature of 95° at the furnace after the supply air had dissipated its heat in the panel. Obviously, if supply air were discharged into the occupied space, any volume of air released into the house would return to the furnace at room temperature and thus effect a reduction of the supply air temperature. Also, because each cfm at 25° temperature difference at discharge (95°-70°) can contribute approximately 26 BTUH toward offsetting the heat losses, releasing supply air into the occupied space appeared to be the most convenient and economical means to increase the capacity of the system.

To obtain this additional convection effect, after the 1945-46 heating season, a continuous slot was opened along the south windows by removing the mortar from a joint in the tile floor about 6 inches from the wall. This change is shown in the detail in Fig. 3. This provided up-discharge of warm air and reversed the air currents that normally descended at the window surfaces. As the air flows through the tiles across the floor, on reaching the south wall part of the air flows through the slot into the rooms and the balance returns to the furnace through the return tiles. The air which enters the rooms returns through a grille placed above the bath room door and directly connected with the furnace by a short duct.

Unfortunately, the house construction did not per-

mit bleeding all the supply air into the occupied space, nor permit varying proportions from room to room. However, the panel-convection arrangement reduced supply air temperature from 150° to 128°. A velocity of 250 fpm. at the slot indicates approximately 200-250 cfm is being discharged into the rooms.

Results

Fig. 1 graphically compares the BTUH delivered by the closed warm air panel with the panel-convection system under comparable weather conditions. In each case the burner and blower were in continuous operation and so offer a means to gauge the improvement attained by discharging a portion of the supply air into occupied space.

The BTUH delivered during each interval are as follows:

Time	Closed Panel Btu. per hr.	Panel-Convection Btu. per hr.
12:00 MN.	30894	33604
1:00 A. M.	31436	34146
2:00 A. M.	31978	34959
3:00 A. M.	33062	37127
4:00 A. M.	33604	39295
5:00 A. M.	34688	40650
6:00 A. M.	35230	41463
7:00 A. M.	36314	42547

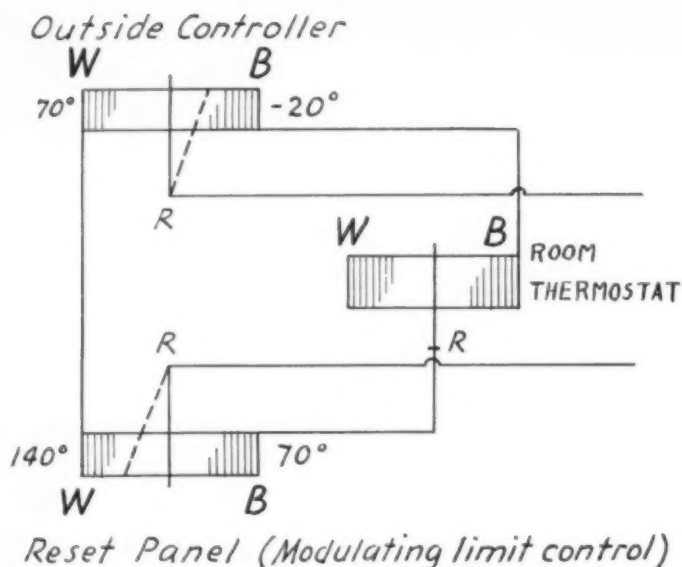


Fig. 2—Diagram showing arrangement of the outdoor-indoor "Moduflow" control system. Text describes operation and results.

It should be observed that the panel-convection system reached a maximum capacity of $78\frac{1}{2}^{\circ}$ temperature difference, or $70\frac{1}{2}^{\circ}$ room temperature at -8° outside temperature; while the closed panel system reached a maximum capacity of 67° temperature difference, or 62° room temperature at -5° outside temperature.

Since increased capacity was attained by discharging a portion of supply air into the occupied space it is reasonable to assume that larger volumes of supply air discharged into the house would have improved the capacity, efficiency and flexibility of the system still further.

Outdoor-Indoor Control System

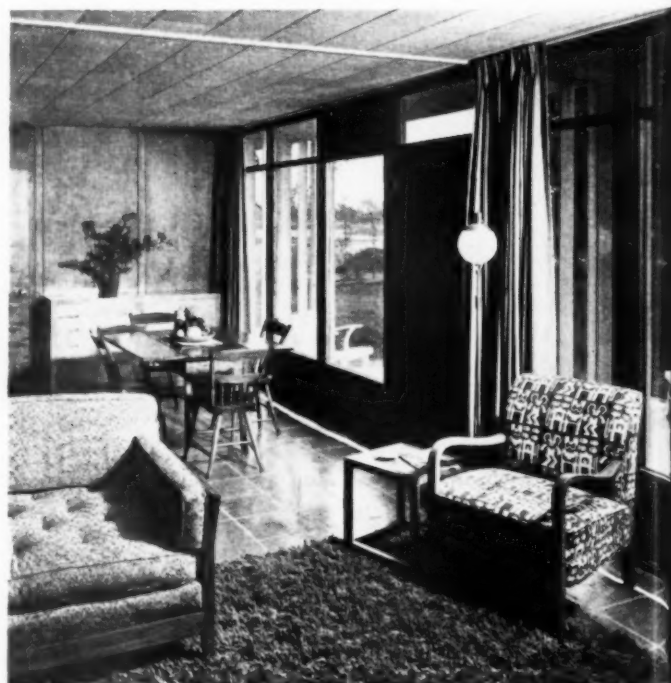
While discharging supply air thus contributed to flexibility and increased capacity, considerable overshooting and undershooting of room temperatures was experienced whenever the system was operating during moderate winter temperatures. It was determined that the "mass" to be heated by supply air in the panel amounted to approximately 110 lbs. per square foot of floor and upon a call for burner operation by the room thermostat, considerable time elapsed before the combined heat released into the occupied space by the panel and discharged air caused the thermostat to shut off the burner. This was a direct effect of the mass of the floor alternately storing and releasing Btus. In order to keep a constant check on load requirements and provide for continuous heat input, a Moduflow Control System consisting of a reset panel, a modulating room thermostat and an outside controller was installed.

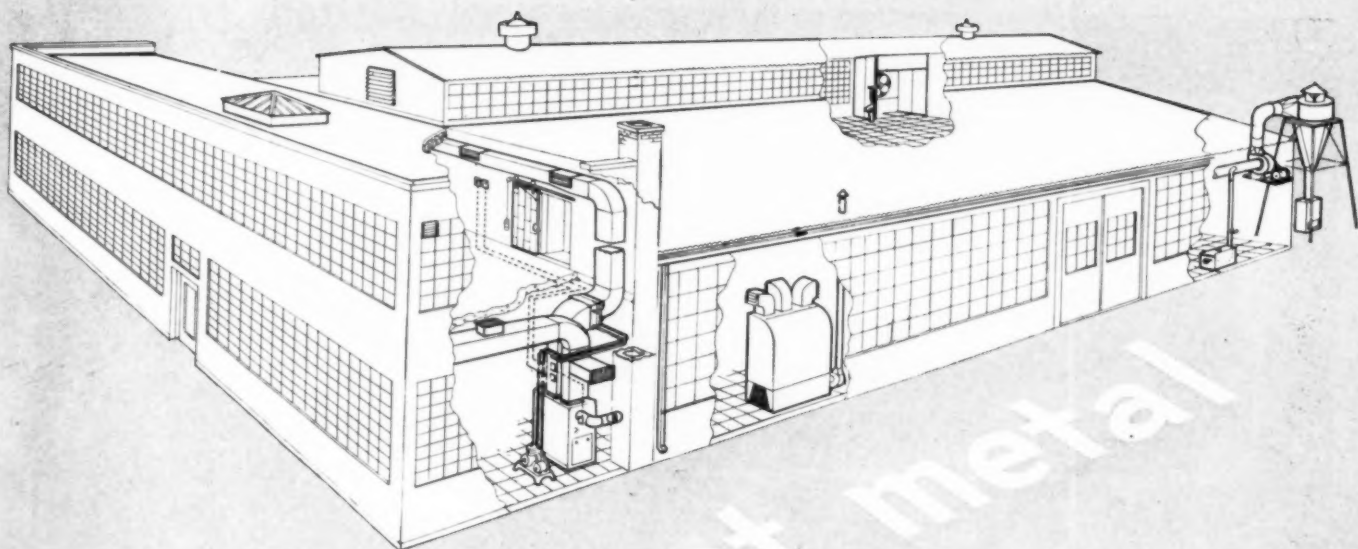
"Moduflow" Explained

Fig. 2 is a simplified wiring diagram of important elements of this control system. A modulating motor in the reset panel is connected by mechanical linkage

to a limit control which maintains plenum temperature. Since each different position of the modulating motor resets the limit control correspondingly, the limit control thus becomes modulating and is automatically readjusted as changes of weather affect the control system. The "wipers" in Fig. 2 are shown in a mid-position on their respective potentiometer coils and as outside temperature drops, the wiper in the outside controller moves toward "B" causing the motor in the reset panel to readjust its position until the wiper in the motor is in a corresponding position toward "W". The circuit is again in balance and the limit control setting has been raised to offset the additional heat losses. Similarly, the room thermostat wiper moves as it senses changes in room temperature and readjusts the limit control should the outside controller's adjustment be incorrect. Thus, an increase in room temperature from sun effect moves the room thermostat wiper toward "W" causing the reset panel to readjust the limit control to a lower temperature. Once a limit control temperature is selected, and with constant load conditions, the burner cycles with whatever frequency is required to maintain the control point. In normal winter weather, a limit control setting of approximately 110° - 115° was found to be common in Green's Solar Home and thus contributed further to reduction of gradient between the panel and the ground causing further increase in the operating efficiency of the system.

The outside tile joint was opened (shown by imposed white line) so that air from each tile line could enter the rooms. Not all the air flowing came through the "slot" because of the slot's restriction, but even with only 250 cfm entering out of the total of 1320 cfm entering panel, the combination panel-convection system shows greatly improved results as indicated in Fig. 1.





sheet metal *Section*

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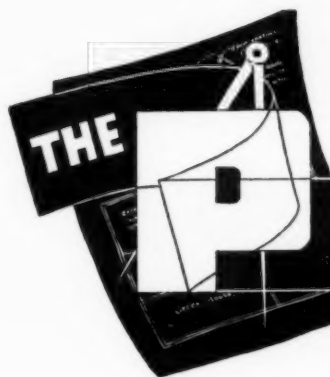
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AMERICAN ARTISAN, April, 1947
SHEET METAL SECTION



Readers are invited to submit suggestions for these problems

PROBLEM CORNER

Cleaning Fire Tarnished Stainless

American Artisan:

We do a considerable amount of dairy work. Recently we have been called in to repair several badly buckled tanks built of stainless steel. The only way to remove the buckles seemed to be to slit the bottom to remove excess material and then weld a new seam. This we tried on the first tank only to find considerable trouble in welding the seam so that there would not be warpage in the bottom. Is there some procedure whereby such warpage is eliminated or prevented. We are using a torch and rod to do the welding.

Certain stainless steel parts in our plant were tarnished by dirt, smoke and heat tint. If possible, we would like to renew the finish. What can we do?

P. T., Wyo.

Suggestion of
Republic Steel Corp.:

"If the equipment has been discolored by smoke only, any household cleaning compound like Bon Ami, Bab-O, Dutch Cleanser, etc., will remove the scum. But be sure you rub in the same direction as the polishing lines. If these materials do not work satisfactorily, Nusteel cleaner made by the Nusteel Company, Chicago, will remove the heavier scum and light heat tint. This again should be used in the direction of the polishing lines. If the equipment has become so discolored from heat that none of these is satisfactory, it may be necessary to rub down with light machine oil and possibly 180-200 emery; however, this should be tried only as a last attempt."

Suggestion by
Carnegie-Illinois Steel Co.

"If the stainless steel has been badly discolored by smoke only, it may be cleaned by vigorous use of Bon Ami or any similar mild abrasive. If the discoloration is more serious, the use of an iron-free emery of about 320 grit, mixed with light machine oil and vigorously rubbed in one direction (preferably the direction of the original polishing lines) followed by a thorough wash with soap and water, should renew the finish."

"There is on the market a product Nusteel which can be used to renew surfaces. This material is entirely soluble in water—use of a minimum amount is suggested—always rubbing in the direction of the original polishing lines."

Suggestions by
Joseph T. Ryerson & Son, Inc.

"If the damage consists only of smoke stain and dirt, then it can most economically be removed by swabbing with nitric acid. Nitric acid will have no damaging effect. In using, make a cloth swab on the end of a stick and equip the man who does the work with a pair of rubber gloves as the acid attacks the skin very readily. After swabbing with the acid wash thoroughly with water."

"If the stainless steel has been heated to a sufficient degree to produce a heat tint—a discoloration which may be brown, or purple, or blue in color—abrasive cleaning may be necessary. Use the finest obtainable grade of emery powder with oil, applied with a rag. This will result in a dull finish."

"If a polished finish is necessary, then a high grade of polishing powder must be used, with water, applied with a rag. This will be a slow process as the powder cuts very slowly. Fine emery powder or carborundum powder of about 200 or 250 grit used with light machine oil will produce a very nice looking surface which many

prefer to high polish. In applying the powder, use a board as a guide for the hand so that every polishing stroke will be straight and parallel—if they are not, a poor appearance will be produced."

Suggestions by
Nusteel Company

"If you have a flexible shaft which turns approximately 600 RPM, you can secure from us a special type of Osborn brush especially developed for this purpose. The brushes can be built up to any desired face providing you use special aluminum end plates which hold the brushes."

So the reader
did this:

"We first washed all the equipment with hot water and soap to remove loose dirt. We then went over all the items with Nusteel as instructed. This removed the greater portion of all dirt and stains. Where the stainless had turned blue we used 'tripoli' and a cloth buffer, driven by a portable sander. We then cleaned off the tripoli and buffer to apply S.O.S. Then, finally, we went over the surface with the Nusteel again. The final finish is well worth the effort and the customer is satisfied."

Warping in Welding Stainless

American Artisan:

Reply by
Linde Air Products Co.

"As is well known, stainless steel has a much higher coefficient of thermal expansion and a much lower thermal conductivity than mild steel, and these characteristics combine to greatly increase its tendency to buckle or warp when welded. In general, the tendency to warpage can be reduced by keeping the heat input to a minimum and by the use of well designed jigs and fixtures."

"A blowpipe tip one or two sizes smaller than customary for mild steel of the same thickness, and a flame as small as possible, should be used. The flame should be adjusted to neutral, or with a slight excess acetylene feather; a solution of flux in water should be painted on the underside of the joint only, and welding should be performed very rapidly. The possibility of using a flange type joint, which does not require the addition of metal from the welding rod should be considered. The joint should be tack welded at small intervals, perhaps as often as every inch."

"A clamping arrangement which should be satisfactory consists of a backing-up bar and two side bars. The backing-up bar consists of a steel or cast iron section sufficiently large to be quite rigid, in the top of which there is inserted a smaller copper bar with a cross section about $\frac{1}{2}$ " x $1\frac{1}{2}$ "; copper being used because of its high heat conductivity. A small groove should be cut down the center of the exposed surface of the copper bar. Clamping bars are simply fairly heavy sections of iron or steel with one edge beveled at 45°, so as to expose the seam to be welded. The joint is placed directly over the groove in the copper bar, the two clamping bars placed one on either side of the joint and very close to it, and the whole assembly tightly clamped together. With this type of fixture, it should not be necessary to employ tack welds."

"An arrangement such as that described above tends to confine the forces of expansion and contraction in the plastic weld metal, and a joint satisfactorily free from warpage should be obtained. This is not to say, however, that buckling will be completely eliminated. If that which does occur is still in excess of the minimum amount desired, some relief may be obtained by hammering or peening the weld."

Pipe and Duct Sizing Charts

For Cfm's From 30 to 80,000

[Part II]

IN the March issue, the first two tables of this series appeared as Tables A and B. Three additional tables are presented in this issue and one table will appear in May. In May there will also be a Conversion Table for frictions other than 0.07 inches of water gauge.

Readers are advised that all Tables (A through F) are based upon 0.07 inches water gauge resistance. The Conversion Table which will be published will make it possible for the reader to convert the sizes shown in the Tables to sizes in resistances from 0.020 to 1.00 water gauge.

The figures shown in these Tables agree with the Standard Friction Chart. The merit of these Tables

is that the size may be directly determined without having to interpolate between the close lines of the Friction Chart. Readers who have tried to use the usual size of Friction Chart will appreciate how time saving these Tables can be.

All these Tables were prepared originally by A. M. Norris, Chief air conditioning engineer of the Lloyd E. Mitchell Inc. company, of Baltimore, Md. The charts were made available to American Artisan by William P. Flanagan, vice-president of the Lloyd E. Mitchell company. The charts without deviation have been in use by Mitchell engineers for approximately eight years.

TABLE C
Equivalent Rectangular Duct Sizes

Round Duct Size Ins.	CFM	FPM	8x	10x	12x	15x	18x	21x	24x	30x	36x	42x	48x	54x	60x	Round Duct Area Sq. Ft.
22.22	2600	966	61	45	36	28	23	20	17	14	12	11	9 1/2			2.6929
22.36	2650	971	62	46	37	28	23	20	18	15	13	11	10			2.7269
22.52	2700	976	63	47	37	29	24	20	18	15	13	11	10			2.7602
22.68	2750	981	64	48	38	29	24	21	18	15	13	11	10			2.8055
22.82	2800	986	65	48	38	30	24	21	18	15	13	12	10			2.8403
22.98	2850	990	66	49	39	30	25	21	19	15	13	12	11			2.8803
23.12	2900	994		50	40	30	25	21	19	15	13	12	11			2.9155
23.28	2950	998		51	40	31	25	22	19	16	14	12	11			2.9559
23.42	3000	1002		52	41	31	26	22	19	16	14	12	11			2.9916
23.72	3100	1010		53	42	32	26	23	20	16	14	12	11			3.0688
24.00	3200	1018		54	43	33	27	23	20	17	14	13	11			3.1416
24.28	3300	1026		56	44	34	28	24	21	17	15	13	12			3.2153
24.56	3400	1034		58	45	35	28	24	21	17	15	13	12			3.2900
24.81	3500	1042		59	46	36	29	25	22	18	15	13	12			3.3573
25.08	3600	1049		60	48	36	30	25	22	18	15	14	12	11		3.4307
25.34	3700	1056		62	49	37	30	26	23	18	16	14	13	12		3.5022
25.60	3800	1062		63	50	38	31	26	23	19	16	14	13	12		3.5745
25.86	3900	1070		64	51	39	32	27	24	19	16	14	13	12		3.6474
26.10	4000	1077		66	52	39	32	27	24	19	17	15	13	12		3.7154
26.34	4100	1084			53	40	33	28	24	20	17	15	13	12		3.7842
26.58	4200	1090			54	41	34	28	25	20	17	15	14	12		3.8533
26.82	4300	1096			55	42	34	29	25	20	17	15	14	13		3.9224
27.06	4400	1102			57	43	35	30	26	21	18	16	14	13		3.9938
27.28	4500	1108			58	44	35	30	26	21	18	16	14	13		4.0610
27.52	4600	1114			59	44	36	30	26	21	18	16	14	13		4.1307
27.74	4700	1120			60	45	36	31	27	22	18	16	15	13		4.1971
27.96	4800	1126			61	46	37	32	27	22	19	17	15	14	13	4.2639
28.18	4900	1132			62	47	38	32	28	22	19	17	15	14	13	4.3312
28.38	5000	1138			63	48	38	32	28	23	19	17	15	14	13	4.3929
28.80	5200	1150			65	49	40	33	29	23	20	17	16	14	13	4.5239
29.20	5400	1161				50	41	34	30	24	20	18	16	15	14	4.6504
29.60	5600	1172				52	42	35	31	25	21	18	16	15	14	4.7787
29.98	5800	1183				54	43	36	31	25	21	19	17	15	14	4.9022
30.36	6000	1194				56	45	37	32	26	22	19	17	16	14	5.0272
30.73	6200	1204				57	46	38	33	26	22	19	18	16	14	5.1505
			15x	18x	21x	24x	30x	36x	42x	48x	54x	60x	66x			
31.10	6400	1214			58	47	39	34	27	23	20	18	16	15	14	5.2754
31.46	6600	1223			60	48	40	35	28	23	21	18	17	15	14	5.3983
31.82	6800	1232			61	49	41	36	28	24	21	19	17	16	15	5.5224
32.16	7000	1241			63	50	42	36	29	24	21	19	17	16	15	5.6411
32.50	7200	1250			64	51	43	37	30	25	22	19	18	16	15	5.7609
32.83	7400	1259			65	52	44	38	30	25	22	20	18	17	15	5.8786
33.16	7600	1267				54	45	39	31	26	23	20	18	17	16	5.9887
33.49	7800	1275				55	46	39	31	26	23	21	19	17	16	6.1084
33.82	8000	1283				56	46	40	32	27	24	21	19	17	16	6.2383
34.12	8200	1291				57	47	41	32	27	24	21	19	18	16	6.3497

Conversion Tables—CFM To Rectangular Sizes

TABLE D
Equivalent Rectangular Duct Sizes

Round Duct Size Ins.	CFM	FPM	18x	21x	24x	30x	36x	42x	48x	54x	60x	66x	72x	Round Duct Size Sq. Ft.
24.44	8400	1299	59	48	42	33	28	24	22	20	18	17	17	6.4543
24.74	8600	1315	60	49	43	34	29	25	22	20	18	17	17	6.5825
25.04	8800	1331	61	50	44	35	30	26	23	21	19	17	17	6.6965
25.32	9000	1347	62	51	45	36	31	27	24	22	20	18	17	6.8041
25.62	9200	1363	63	52	46	37	32	28	25	23	21	19	18	6.9000
25.90	9400	1379	64	53	47	38	33	29	26	24	22	20	19	7.0293
26.18	9600	1394	65	54	48	39	34	30	27	25	23	21	20	7.1395
26.46	9800	1410	66	55	49	40	35	31	28	26	24	22	21	7.2395
26.74	10000	1426	67	56	50	41	36	32	29	27	25	23	22	7.3222
27.10	10250	1456	68	57	51	42	37	33	30	28	26	24	23	7.5070
27.44	10500	1474	69	58	52	43	38	34	31	29	27	25	24	7.6356
27.78	10750	1492	70	59	53	44	39	35	32	30	28	26	25	7.7484
28.10	11000	1510	71	60	54	45	40	36	33	31	29	27	26	7.8484
28.42	11250	1528	72	61	55	46	41	37	34	32	30	28	27	7.9412
28.74	11500	1546	73	62	56	47	42	38	35	33	31	29	28	8.0210
29.06	11750	1564	74	63	57	48	43	39	36	34	32	30	29	8.0910
29.38	12000	1582	75	64	58	49	44	40	37	35	33	31	30	8.1556
29.68	12250	1600	76	65	59	50	45	41	38	36	34	32	31	8.2122
29.98	12500	1618	77	66	60	51	46	42	39	37	35	33	32	8.2614
30.28	12750	1636	78	67	61	52	47	43	40	38	36	34	33	8.3082
30.58	13000	1654	79	68	62	53	48	44	41	39	37	35	34	8.3516
30.88	13250	1672	80	69	63	54	49	45	42	40	38	36	35	8.3916
31.16	13500	1690	81	70	64	55	50	46	43	41	39	37	36	8.4284
31.46	13750	1708	82	71	65	56	51	47	44	42	40	38	37	8.4614
31.72	14000	1725	83	72	66	57	52	48	45	43	41	39	38	8.4914
31.98	14250	1743	84	73	67	58	53	49	46	44	42	40	39	8.5184
32.26	14500	1761	85	74	68	59	54	50	47	45	43	41	40	8.5426
32.52	14750	1779	86	75	69	60	55	51	48	46	44	42	41	8.5634
32.78	15000	1797	87	76	70	61	56	52	49	47	45	43	42	8.5814
33.04	15250	1815	88	77	71	62	57	53	50	48	46	44	43	8.5974
33.28	15500	1833	89	78	72	63	58	54	51	49	47	45	44	8.6114
33.54	15750	1851	90	79	73	64	59	55	52	50	48	46	45	8.6234
33.78	16000	1869	91	80	74	65	60	56	53	51	49	47	46	8.6344
34.02	16250	1887	92	81	75	66	61	57	54	52	50	48	47	8.6444
34.26	16500	1905	93	82	76	67	62	58	55	53	51	49	48	8.6534
34.48	16750	1923	94	83	77	68	63	59	56	54	52	50	49	8.6614
34.70	17000	1941	95	84	78	69	64	60	57	55	53	51	50	8.6684
34.92	17250	1959	96	85	79	70	65	61	58	56	54	52	51	8.6744
35.14	17500	1977	97	86	80	71	66	62	59	57	55	53	52	8.6794
35.36	17750	1995	98	87	81	72	67	63	60	58	56	54	53	8.6834
35.58	18000	2013	99	88	82	73	68	64	61	59	57	55	54	8.6864
35.78	18250	2031	100	89	83	74	69	65	62	60	58	56	55	8.6884
36.00	18500	2049	101	90	84	75	70	66	63	61	59	57	56	8.6894
36.18	18750	2067	102	91	85	76	71	67	64	62	60	58	57	8.6904
36.36	19000	2085	103	92	86	77	72	68	65	63	61	59	58	8.6914
36.54	19250	2103	104	93	87	78	73	69	66	64	62	60	59	8.6924
36.72	19500	2121	105	94	88	79	74	70	67	65	63	61	60	8.6934
36.90	19750	2139	106	95	89	80	75	71	68	66	64	62	61	8.6944
37.08	20000	2157	107	96	90	81	76	72	69	67	65	63	62	8.6954
37.26	20250	2175	108	97	91	82	77	73	70	68	66	64	63	8.6964
37.44	20500	2193	109	98	92	83	78	74	71	69	67	65	64	8.6974
37.62	20750	2211	110	99	93	84	79	75	72	70	68	66	65	8.6984
37.80	21000	2229	111	100	94	85	80	76	73	71	69	67	66	8.6994
37.98	21250	2247	112	101	95	86	81	77	74	72	70	68	67	8.7004
38.16	21500	2265	113	102	96	87	82	78	75	73	71	69	68	8.7014
38.34	21750	2283	114	103	97	88	83	79	76	74	72	70	69	8.7024
38.52	22000	2301	115	104	98	89	84	80	77	75	73	71	70	8.7034
38.70	22250	2319	116	105	99	90	85	81	78	76	74	72	71	8.7044
38.88	22500	2337	117	106	100	91	86	82	79	77	75	73	72	8.7054
39.06	22750	2355	118	107	101	92	87	83	80	78	76	74	73	8.7064
39.24	23000	2373	119	108	102	93	88	84	81	79	77	75	74	8.7074
39.42	23250	2391	120	109	103	94	89	85	82	80	78	76	75	8.7084
39.60	23500	2409	121	110	104	95	90	86	83	81	79	77	76	8.7094
39.78	23750	2427	122	111	105	96	91	87	84	82	80	78	77	8.7104
39.96	24000	2445	123	112	106	97	92	88	85	83	81	79	78	8.7114
40.14	24250	2463	124	113	107	98	93	89	86	84	82	80	79	8.7124
40.32	24500	2481	125	114	108	99	94	90	87	85	83	81	80	8.7134
40.50	24750	2500	126	115	109	100	95	91	88	86	84	82	81	8.7144
40.68	25000	2518	127	116	110	101	96	92	89	87	85	83	82	8.7154
40.86	25250	2536	128	117	111	102	97	93	90	88	86	84	83	8.7164
41.04	25500	2554	129	118	112	103	98	94	91	89	87	85	84	8.7174
41.22	25750	2572	130	119	113	104	99	95	92	90	88	86	85	8.7184
41.40	26000	2590	131	120	114	105	100	96	93	91	89	87	86	8.7194
41.58	26250	2608	132	121	115	106	101	97	94	92	90	88	87	8.7204
41.76	26500	2626	133	122	116	107	102	98	95	93	91	89	88	8.7214
41.94	26750	2644	134	123	117	108	103	99	96	94	92	90	89	8.7224
42.12	27000	2662	135	124	118	109	104	100	97	95	93	91	90	8.7234
42.30	27250	2680	136	125	119	110	105	101	98	96	94	92	91	8.7244
42.48	27500	2698	137	126	120	111	106	102	99	97	95	93	92	8.7254
42.66	27750	2716	138	127	121	112	107	103	100	98	96	94	93	8.7264
42.84	28000	2734	139	128	122	113	108	104	101	99	97	95	94	8.7274
43.02	28250	2752	140	129	123	114	109	105	102	100	98	96	95	8.7284
43.20	28500	2770	141	130	124	115	110	106	103	101	99	97	96	8.7294
43.38	28750	2788	142	131	125	116	111	107	104	102	100	98	97	8.7304
43.56	29000	2806	143	132	126	117	112	108	105	103	101	99	98	8.7314
43.74	29250	2824	144	133	127	118	113	109	106	104	102	100	99	8.7324
43.92	29500	2842	145	134	128	119	114	110	107	105	103	101	100	8.7334
44.10	29750	2860	146	135	129	120	115	111	108	106	104	102	101	8.7344
44.28	30000	2878	147	136	130	121	116	112	109	107	105	103	102	8.7354
44.46	30250	2896	148	137	131	122	117	113	110	108	106	104	103	8.7364
44.64	30500	2914	149	138	132	123	118	114	111	109	107	105	104	8.7374
44.82	30750	2932	150	139	133	124	119	115	112	110	108	106	105	8.7384
45.00	31000	2950	151	140	134	125	120	116	113	111	109	107	106	8.7394
45.18	31250	2968	152	141	135	126	121	117	114	112	110	108	107	8.7404
45.36	31500	2986	153	142	136	127	122	118	115	113	111	109	108	8.7414
45.54	31750	3004	154	143	137	128	123	119	116	114	112	110	109	8.7424
45.72	32000	3022	155	144	138	129	124	120	117	115	113	111	110	8.7434
45.90	32													

Heavy Gauge Blow Pipe Fittings*

[Dust Collector Hopper Spirals]

By William Neubecker

THIS article will demonstrate the use of triangulation in developing hopper spirals. The nature of the material to be handled, governs the width of the spiral strip. 1 to 1½ inch wide, to form one or two revolutions will prevent dust and shavings eddying in the hopper. In the operation of the collector the dust and shavings are thrown against the inside surface of the hopper and descend by gravity in the spiral path to the lower discharge pipe, the air having escaped through the ventilator at the top. The standard type of collectors are usually made from No. 20 to 10 gauge galvanized iron, depending on the size of the collector. All joints are closely riveted and soldered, or welded when heavy gauge metal is used. The two full page drawings (Plates XII and XII-A) explain in detail the methods of laying out the spiral strip to fit the spiral guide line, developed on the inside surface of the hopper: 1-9-3°-7° on Plate XII shows the elevation of the hopper. Above the elevation draw the plan in its proper relative position as shown. Space the plan in eight equal divisions shown from 1 to 8, from which points draw radial lines to the center *b*. In this case only eight divisions have been used, so as to avoid confusion of lines in so small a drawing. In practice more divisions should be used, so that the distance between the *chord* and the *arc* will be as little as possible as shown in the diagram at the lower left hand corner on Plate XII.

Drafting Spiral Strip in Elevation

Regardless how many divisions the plan may have, the following rule must be observed. If it is desired to run the spiral twice around the hopper, in other words to make two revolutions, then must the flaring line of the hopper in elevation, be divided in twice the number of divisions contained in the plan; since one revolution would necessarily require the same number of division as there are divisions in the plan. As the spiral in question will have two revolutions and as the plan has been divided in eight divisions, then divide the flaring line in elevation in sixteen divisions as shown from 1 to 1 for the upper revolution and 1 to 1 for the lower revolution, which correspond to similar numbered divisions in plan.

From the divisions 1 to 8 in plan project vertical

lines to intersect the upper line of the hopper in elevation as shown by similar numbers 1° to 8° and from these intersections draw radial lines to the apex A. Now from these sixteen equal divisions on the flaring line of the hopper in elevation, draw lines at right angles to the center line of the hopper to intersect similar numbered radial lines in elevation. Thus lines drawn from 1 on the flaring line intersect similar numbered radial line drawn from 1° in elevation at 1^a, 1^b and 1^{bb}. Lines drawn from 8 on the flaring line intersect the radial line drawn from 8° in elevation at 8^a and 8^b. Lines drawn from 7 on the flaring line intersect the radial line drawn from 7° at 7^a and 7^b. Then line 6 intersects at 6^a and 6^b; line 5 at 5^a and 5^b; 4 at 4^a and 4^b; 3 at 3^a and 3^b and 2 at 2^a and 2^b.

This completes the intersecting points for the upper and lower spiral revolutions.

The spiral curves traced through points so obtained, will give the elevation of the upper and lower spiral line on the inside of the hopper.

Drafting the Spiral Line in Plan

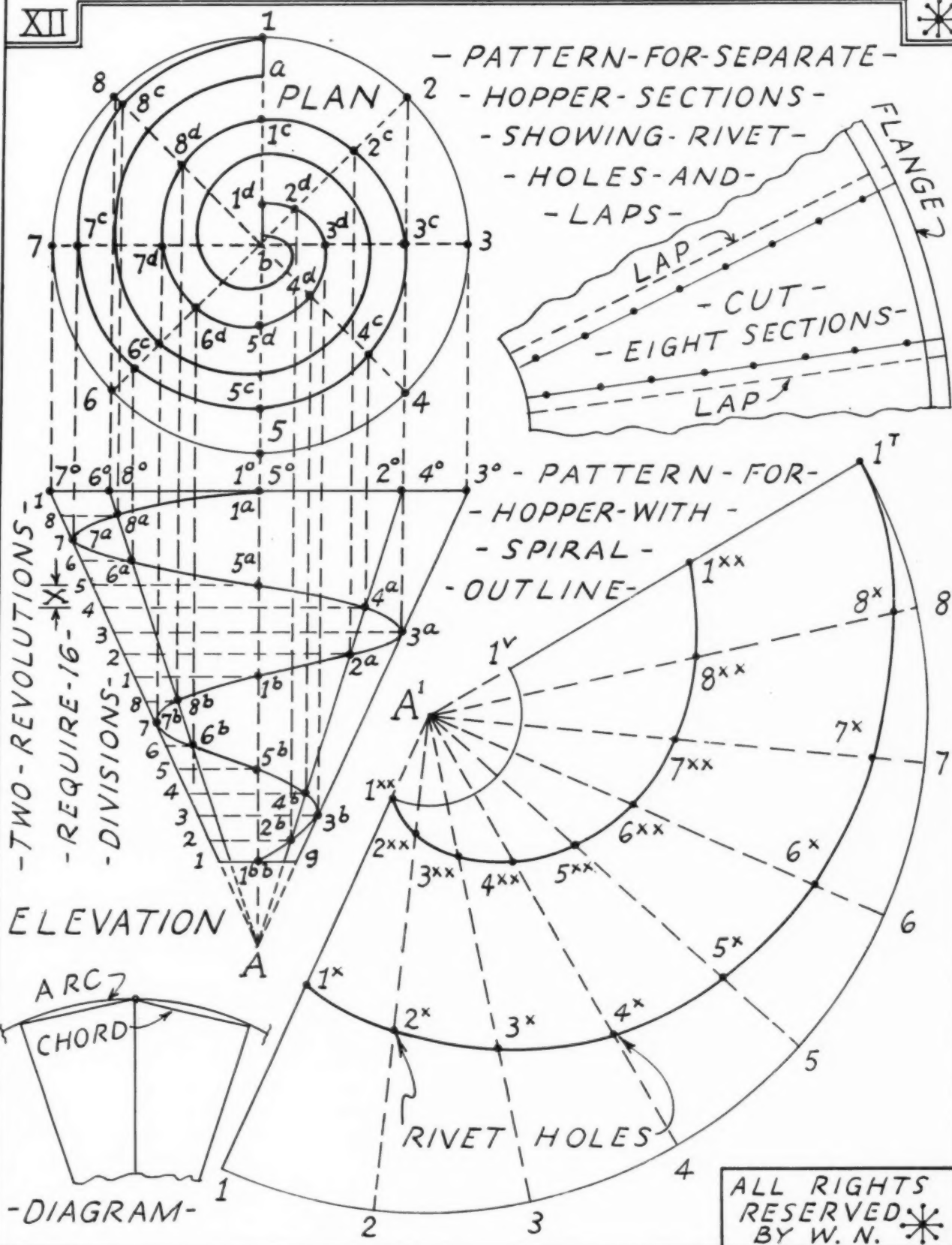
From the various intersections 1 to 8 in plan, radial lines have been drawn to the center *b*. Now from the intersection 8^a on the spiral line in elevation draw a line parallel to the center line, to intersect the radial line drawn from 8 in plan at 8°; then from intersection 7^a on the spiral line in elevation, to intersect the radial line drawn from 7 in plan at 7°; from intersection 6^a in elevation, to intersect the radial line drawn from 6 in plan at 6°; from intersection 4^a in elevation, to intersect the radial line drawn from 4 in plan at 4°; from intersections 3^a and 2^a in elevation locate intersections on radial lines drawn from 3 and 2 in plan at 3° and 2° respectively.

It will be noticed that intersections 5° and 1° in elevation cannot be projected, but are measured with the dividers. Take the distances in elevation from 5^a to 5 and 1^b to 1 and place these distances in plan measuring from the center point *b* on radial lines drawn from 5 and 1 and locate the desired intersections shown by 5° and 1° respectively. In precisely the same manner obtain the intersecting points for the lower spiral revolution, shown by similar numbers 8° to 1°.

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— DEVELOPING-PATTERN-FOR-HOPPER — — SPIRAL-IN-DUST-COLLECTOR —

XII



Through the points of intersections so obtained, trace the outer spiral edge of the two revolutions. Now choose the width of the spiral indicated by 1-a in plan and set off this width equally and parallel around the outer spiral outlines and in this manner obtain the inner spiral outline shown from a spirally round the two revolutions to b.

Using A-3° in elevation as radius and A' in the lower right hand corner as center point, draw the arc 1'-1. Set the dividers equal to the distance 1-2 in plan and step off eight divisions on the arc 1'-1 and number the divisions 2 to 8, from which points draw radial lines to the apex A'. Now with a radius equal to A-9 in elevation and A' in the hopper pattern as center draw the arc 1'-1^{xx}. Then will 1'-1-1^{xx}-1'-1' be the net pattern shape. It now becomes necessary to find the spiral outline which will be used as a guide when riveting the spiral strip inside the hopper. This spiral line is developed as follows: Measuring in each and every instance from the apex A in elevation, take the distances to the various numbered divisions on the flaring line of the hopper, starting at 8 at the top to 1 at the bottom and place these distances on similar numbered radial lines on the hopper pattern. For example: take the distance from the apex A in elevation, to point 8 at the top of the flaring line of the hopper, and place it on the hopper pattern, measuring from the apex A', on the radial line drawn from 8 and obtain the intersection 8^x. In a similar manner, measure from the apex A in elevation to the top point 7 on the flaring line and transfer this distance, measuring from the apex A' in the hopper pattern, to intersect the radial line drawn from 7 and obtain the intersection 7^x. Proceed in this manner, transferring the various distances from the flaring line in elevation to similar numbered radial line in the hopper pattern. Trace the spiral line for the upper and lower revolution as shown respectively from 1' to 1^x and from 1^{xx} to 1^{xx}, which gives the guide lines for laying and the rivet holes for the rivets to attach the spiral strip.

Sectional Patterns for Large Hoppers

In practice large hoppers are made in sections. A one-eighth section is shown above the full hopper pattern. Rivet holes are spaced on the radial lines as shown and one-half of the desired lap is added on either side of the radial lines as indicated. The overlap on the inside of the hopper should be in the direction of the air flow.

Pattern for Upper Spiral Revolution

The pattern for the spiral strip will be developed by triangulation. On Plate XII-A is shown the plan view of the upper spiral revolution reproduced from the plan shown on Plate XII. Note in the plan on Plate XII-A that the outer edge of the spiral around its full revolution, intersects the radial lines, and are numbered 1 to 8 to 1° and that the inner edge of the spiral intersects similar radial lines, lettered from a to i. The width of the spiral strip is indicated by 1-a and 1°-i which shows the true width. Note carefully that the distances along the outer and inner edges of the spiral strip, as well as the opposite connecting dotted lines in plan do not show their true lengths,

because each numbered intersection drops down a distance equal to one of the vertical heights of the divisions shown on the flaring line of the hopper in elevation on Plate XII, indicated by the vertical distance marked X.

Referring to the plan on Plate XII-A note that opposite numbered and lettered points are connected by dotted lines from 1 to b, 8 to c, 7 to d, etc. To avoid confusion of lines in so small a diagram, each true length of the dotted lines above referred to, has been laid out separately as shown to the right of the plan, where horizontal lines are drawn, making 1-b, 8-c, 7-d, etc., equal to the lengths of lines having similar numbers and letters shown in plan. At right angles to these lines draw the heights 1-X, 8-X, 7-X, etc., to correspond to the vertical space marked X in elevation on Plate XII. Now draw lines on Plate XII-A from X to b, X to c, X to d, etc., which gives the true lengths of similar numbered and lettered lines in plan. In similar manner obtain the true lengths of solid lines shown in plan. Take the distances 1 to 8, 8 to 7, 7 to 6, etc., and set them on horizontal lines drawn at the lower left of the drawing as shown by similar numbers. At right angles to these lines draw the heights 1-X, 8-X, 7-X, etc., equal to the vertical space marked X in elevation on Plate XII.

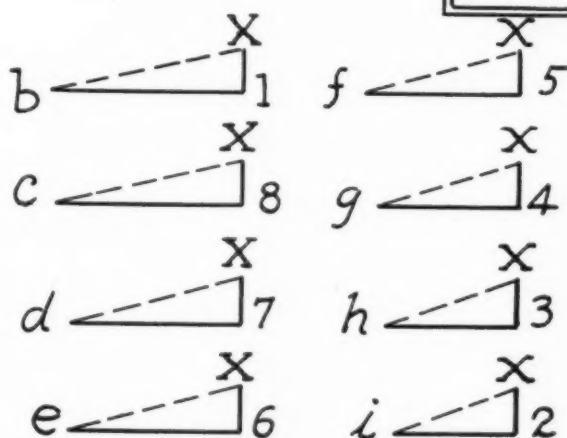
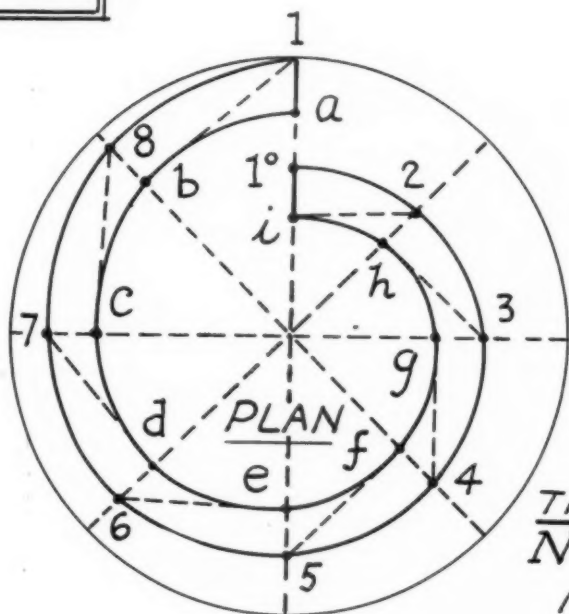
Now draw lines on Plate XII-A from X to 8, X to 7, X to 6, etc., which gives the true lengths of similar numbered and lettered lines shown in plan. In this manner obtain the balance of true lengths of the dotted and solid lines.

Take the distance 1-a in plan and place it as shown by 1-a in the spiral pattern. Now with X-b in the solid true length diagram as radius, and a in the pattern as center draw a short arc at t which intersect by the arc tt struck from 1 as center with a radius equal to the dotted true length X-b. Now with the spiral width 1-a in plan as radius and b in the pattern as center draw the short arc at U, which intersect at 8 by the arc U-U struck from 1 as center with the solid true length X-8 as radius. The arc O in the second division of the pattern, is struck from the center b with a radius equal to the solid true length X-c and intersected by the arc O-O struck from 8 as center with the dotted true length X-c as radius. With the spiral width 1-a in plan as radii and c in pattern as center draw the arc V and intersect it by the arc V-V struck from 8 as center with a radius equal to X-7 in the solid true length as radius.

Proceed in this manner for developing the other six divisions to complete the full pattern shape. Through points of intersections so obtained in the pattern, trace the irregular curve from 1 to 5 to 1° for the outer edge of the spiral and from a to e to i for the inner edge. If measurements are taken along the outer edge of the spiral pattern, they will coincide with similar numbered divisions or spaces shown on the spiral guide lines in the hopper pattern on Plate XII. After the patterns for the upper and lower spiral strips are developed similar to that shown in Plate XII-A they are cut in small sections and riveting flanges allowed, for riveting to the spiral guide line inside the hopper pattern shown on Plate XII. Best results are obtained by starting riveting at the bottom of the hopper.

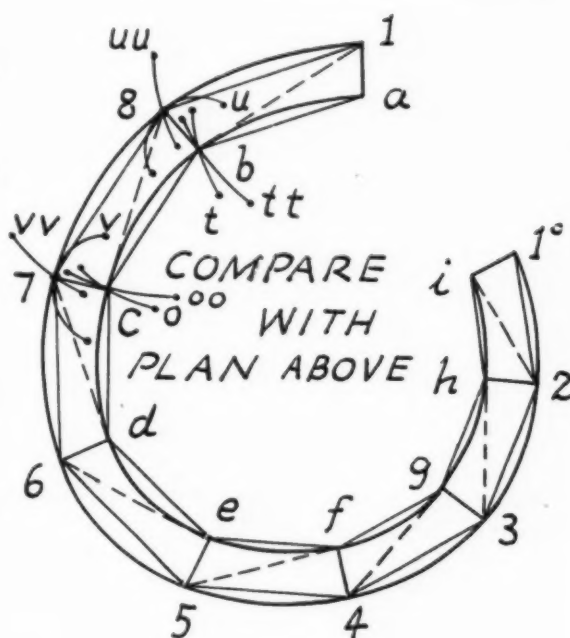
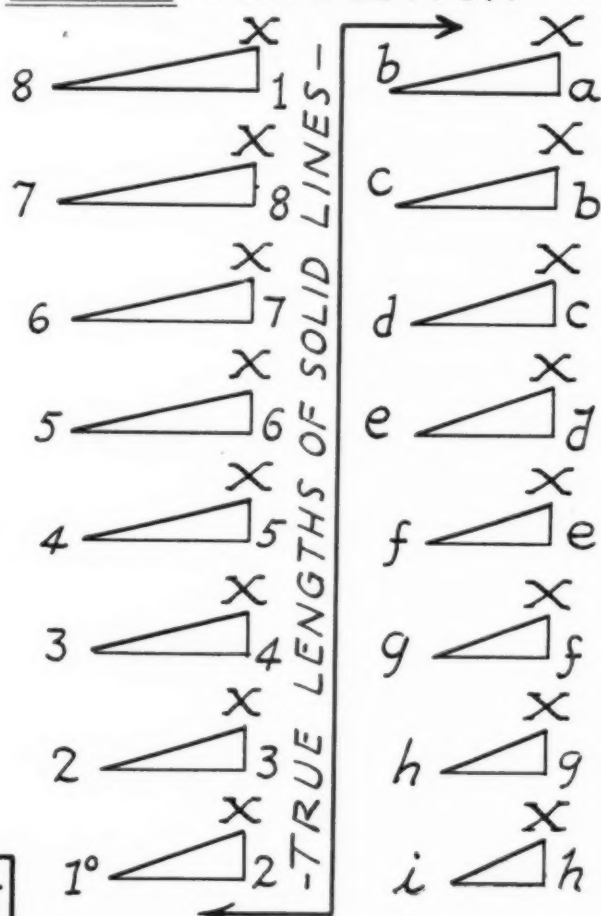
- DEVELOPING SPIRAL FOR UPPER REVOLUTION -

XIIA



TRUE LENGTHS OF DOTTED LINES
NOTE - THE HEIGHT AT X
IS ALWAYS EQUAL TO THE
DIVISION X SHOWN IN
ELEVATION ON PLATE XII

- PLAN OF SPIRAL FOR -
- UPPER - REVOLUTION



PATTERN FOR UPPER
SPIRAL REVOLUTION.
USE SIMILAR METHOD
FOR LOWER SPIRAL

ALL
R.R.

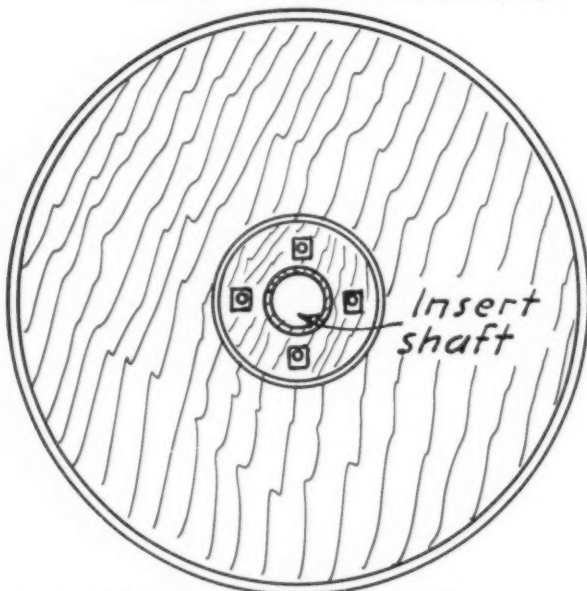


Sheet Delivery In Rolls — Is It Practical?

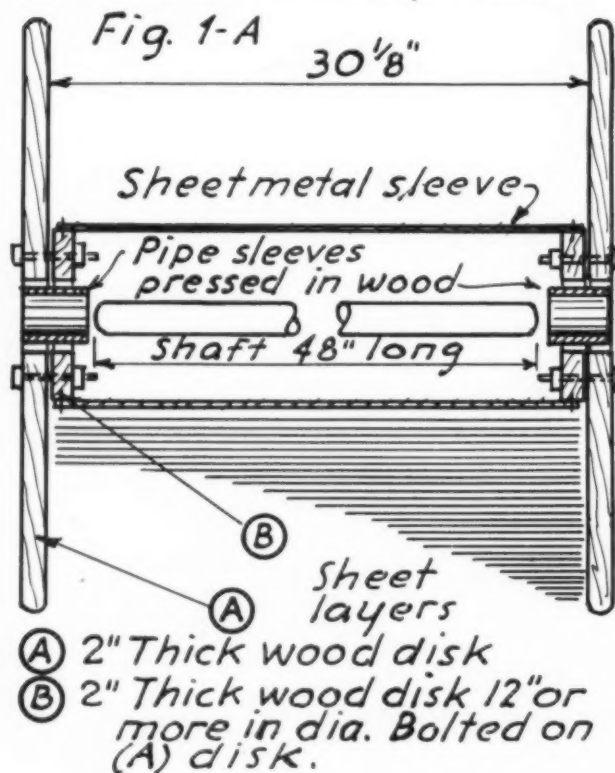
By E. E. Zideck

Sheet Metal Consulting Engineer

Fig.1 Locally constructed sheet metal roll/reel.



Load is rolled off truck over planks and to shop location.



The drawing above is self-explanatory while the photo at the right shows one type of unrolling device in use. This type is not ideal because of complexity in loading and tendency to "work" the metal being unrolled.

SHEET metal shops used to receive sheet material, zinc, copper and lead in rolls, but only the last named metal sheet was continuous, while the first two were simply sheets cut to length and rolled for easier delivery and, also, for protection of the sheets against damage in shipment. Brass up to 15 inches in width is still so delivered. Lately, the steel companies were considering the advantage of shipping their sheet material, principally the galvanized sheet, in rolls weighing over a ton each. And quite recently the aluminum companies have inaugurated shipment of aluminum sheets in widths suitable for air-conditioning ducts, in rolls containing about 2,000 feet of material, the roll weighing approximately 2,300 lbs. This latest development in material shipment and its handling on delivery is comprehensively described and profusely illustrated in the January 1947 issue of the AMERICAN ARTISAN.

Variety of Widths Needed

Looking at the "coiled sheet" delivery from the standpoint of the average sheet metal shop, it appears that the material would have to come in at least four standard widths: 24, 28, 30 and 36 inches, because if there is to be a considerable saving by handling the continuous coil of it, shearing the lengths exactly as needed, obviously it would not be possible to save on the material if it could not be divided into usable strips, such as 24 divided into 12, 6, 8 and 4 inches; the 28 inches wide sheet into 14, 7, 4 and 3½; the 30 inches width into 15, 10, 7½ and 5; and the 36 inches into 18, 9, 4½, 6 and 3 inches wide strips. Throughout



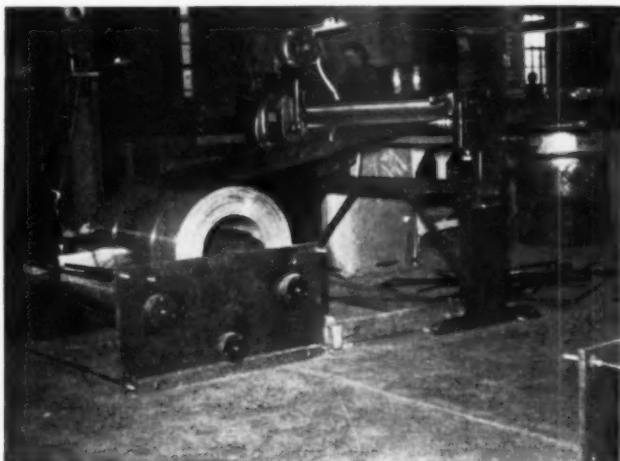
the years the widths cut for pipes, gutters, skylight and other common sheet metal products have become standardized, and the above divisions of the respective width of the sheet into strips explain *why* the mills have produced the sheets in those widths. Were one to deal with a single width only, the 30 inch width for instance, one could not obtain from it several of the common strip-widths without waste. The practice of storing remnants for later use has been abandoned long ago, because it took the men too much time to look for the suitable widths and they preferred to take new sheets instead of looking; and, when the present day wage-scale is considered, it would not pay to have a man spend an hour looking for a suitable size remnant. Therefore, we might just as well dismiss the "usability of the remnant" idea, and say that, if it is not possible to have at least the four standard (divisible) widths of the metal in the shop, in order to use each width without waste, the coiled sheet could not be handled to advantage.

Theory Is Sound

The idea of delivery in coils appears good, considering that the sheet could be cut to the lengths wanted, just unrolling it and shearing the lengths without having to carry in sheets from a stock pile and then wasting much metal in shearing off surplus length. But before a decision could be made in favor of the coiled material it would be necessary to know that there is more than one width of sheet available; and that one width or another can be used without spending valuable time handling the interchange from one sheet-width to another. In other words, until facile handling of the load on delivery is assured, its readiness for use at any time, and its handling requiring no more than two men, and no waste of time, it would not be deemed practical from the shop's standpoint, or better than the present practice of receiving the material in flat sheets.

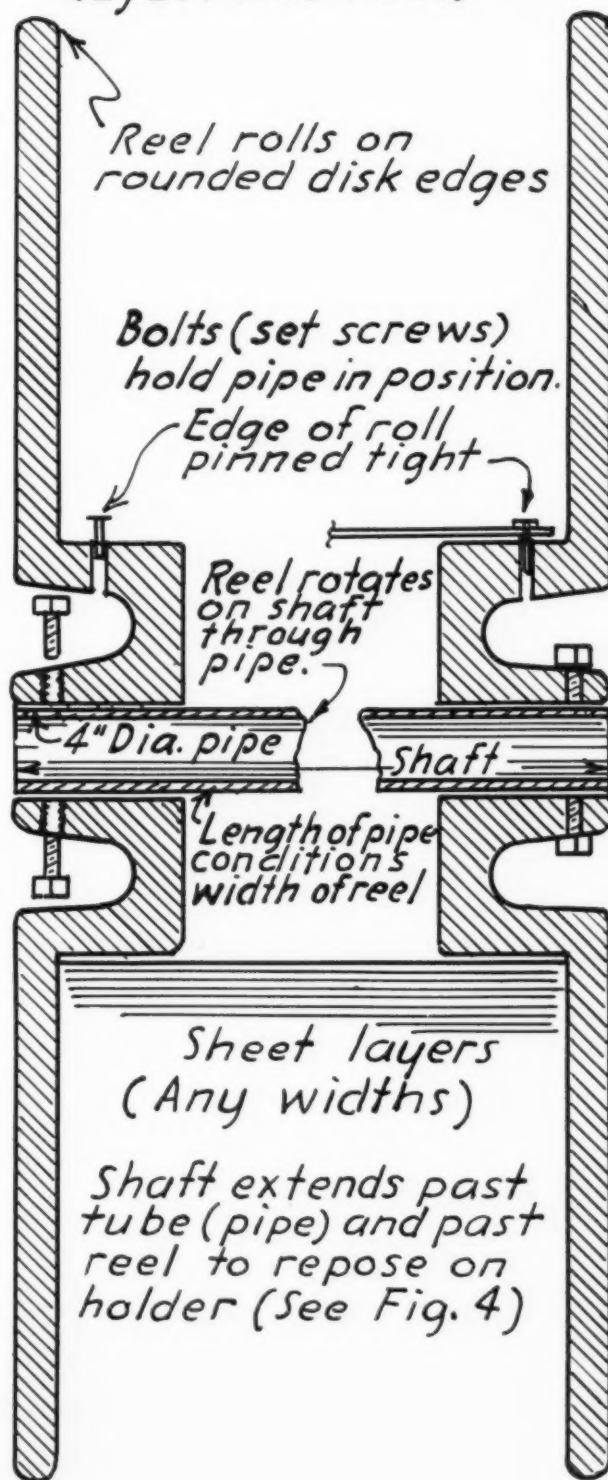
Ease of Handling Vital

From the viewpoint of the user of the material, then, there would have to be at least four widths of the sheet metal available for immediate use in the shop, and the interchange from one width to the other would have to be easy and effected without loss of time. This, obviously, includes also an easy manipu-



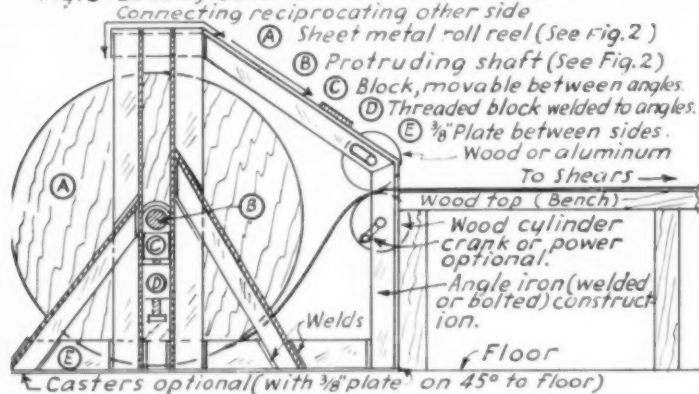
AMERICAN ARTISAN, April, 1947
SHEET METAL SECTION

Fig. 2 - Sheet metal roll adjustable reel.



The apparatus on the left is the roll holder described in the text. It is one of the most practical solutions yet found for the problem.

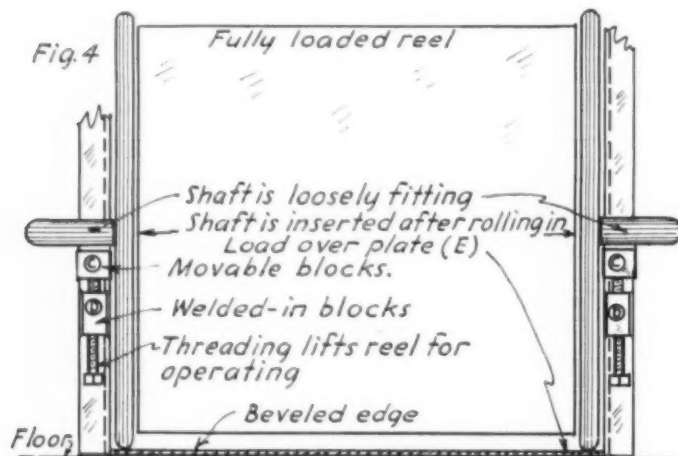
Fig. 3 Locally constructed sheet Un-Roller.



lation of the roll on its delivery and its posting in the shop for use. The practice of shipping the coil and hoisting it, and then inserting it upon a reel and hoisting it into a stand, with the stand being moved into position every time it is to be used at the shears, does not seem completely satisfactory. True, in larger shops where several widths of the sheet may be posted side by side, each having its own propelling and shearing apparatus, the problem would not exist, at least not as it would for the smaller shopman who would want to utilize his existing slip-rolls and shears for unrolling and cutting up the material. It was probably the limited facilities of the average sheet metal shop for handling the rolled material which prompted the steel companies to plan for delivery of the coils to "jobbers" only; who would keep the coils in all widths of the sheet and cut up the material into "flats" for resale to the smaller shop.

Galvanized Rolls to Jobbers

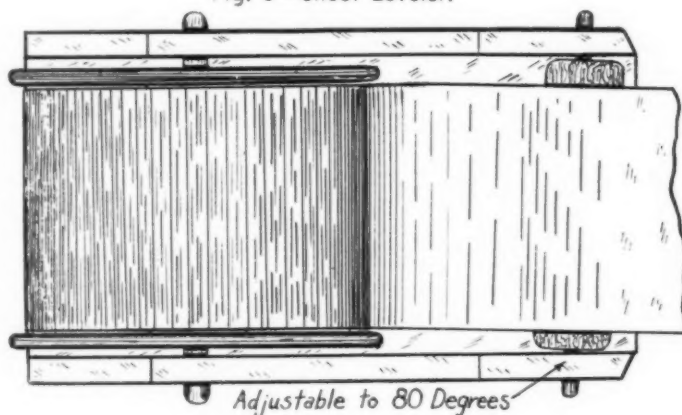
If the plans materialize, and apparently galvanized sheet will soon be rolled for delivery to jobbers and large users who can afford separate stands and unrolling-leveling-shearing equipment for each standard width of the sheets, the average user of the sheets would scarcely notice the difference, except possibly that the sheets coming from the jobber would be more costly. On the other hand there undoubtedly will be competition between the galvanized and the aluminum sheet; and the producers of the latter material might decide to deal with the user directly, eliminating the



jobber and keeping prices down. The aluminum sheet is light, the roll is handled more easily, and if the soft (not strain-hardened) sheet is processed in the shop so as to prevent its hardening in the rolls or in contact with hard materials in its unrolling which would "work" it into hardness, there need be no buckling or waviness in the sheet calling for special "leveling." There are many uses for the aluminum sheet, as for air-conditioning duct work, for downspouts, for ornamental work such as cornice or marquis, store fronts, for skylights and such like. If the producers keep down the price and, principally, make it easy for the shop to handle the material in coils, there undoubtedly would ensue a much wider utilization of the material.

For contemporary users of the aluminum sheet it might be of interest to examine the photo of a "roll holder" appearing in this article. The holder is a standard one, used in great numbers in shops handling rolled material. If the frontal tube is made detachable, so that the coil can be rolled into the holder without

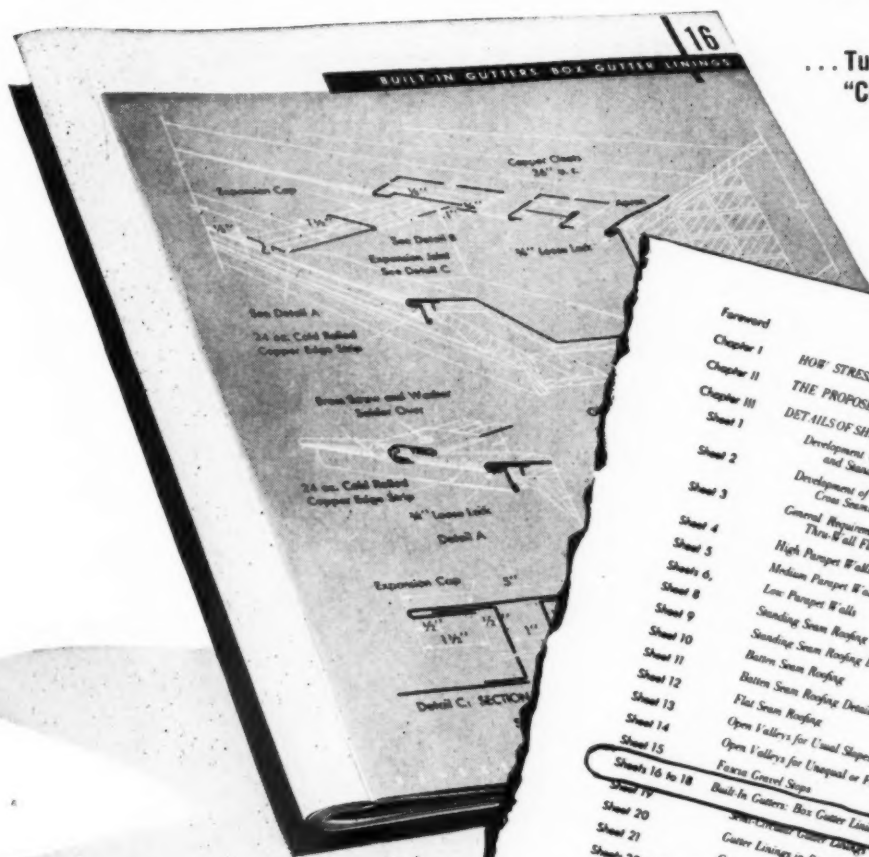
Fig. 5—Sheet Leveler.



much lifting, this contrivance would undoubtedly prove more practical than are either stands, or reels, built up from tubing and reaching through the arbor of the coil. Here consider that the sheet, moving by its uppermost layer in contact with the tubes, is being "worked" by the strain and will become that much harder. It might prove advantageous to either replace the tubes by wood cylinders or, wrap the tubes to avoid the sheet being worked over harder metal than itself. The unrolling of the sheet in steel rolls of the common slip-rolls or just common rolls, might also harden the metal, causing it to buckle. For the unrolling, a contrivance depicted in Fig. 3 of the accompanying drawings would be preferable, in that wood cylinders or soft aluminum cylinders would not "work" the sheet. The contrivance in Fig. 3 was designed for use with the "reel" shown in Fig. 1, 1-A, which consists of two wood discs protecting the edges of the sheet material and permitting the coil loaded upon it being "rolled" on the discs in moving it over the floor and into the holder, as shown. In Fig. 2 is shown a reel designed for use once the steel mills decide to deliver their sheet material in coiled form; in which case the reel would be used in the mill to wind the sheet on it and ship the load contained on the reel,

(Continued on Page 156)

What about built-in gutters?



... Turn to Page 62 in
"Copper and Common Sense"

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Chapter II	THE PROPOSED SOLUTION
Chapter III	DETAILS OF SHEET COPPER INSTALLATIONS
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Sheet 2	Development of Bottom and Loose Lock
Sheet 3	Cross Seams
Sheet 4	General Requirements for Base and
Sheet 5	Thru Wall Flashings
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	Table of Thickness and Weight of Sheet
	and Strip Copper
	Revere Sales Office

Contents

COPPER and COMMON SENSE

SELDOM has a publication by a manufacturer received as wide a welcome as Revere's 96-page booklet, "Copper and Common Sense". The chances are you already have a copy, but if not, write for it now while there are still a few available. On questions of sheet copper construction you will find it gives the answers—complete.

On box gutter linings for built-in gutters, for example, there are six pages of details and text. Here, as elsewhere throughout the book, you get the latest, most authoritative facts on the best ways so far developed for designing and carrying out sheet copper construction. It is based on Revere's famous program of sheet copper research in which wholly new facts were discovered which reduce this type of construction to a matter of engineering design.

Checked and endorsed by leading architects and experienced sheet metal experts, the charts, details and information in this booklet are designed for practical men to use in solving their day-to-day problems.

Here is a simple, direct guide to longer lasting, more

trouble-free sheet copper construction. It will always pay you to turn to this booklet first. Complimentary copies have been sent to all holders of Sweet's Architectural File, and, through Revere Distributors, to the majority of the sheet metal contractors throughout the country. For any further help you may wish, call on the Revere Technical Advisory Service, Architectural. Revere products are sold by Revere Distributors in all parts of the country.

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The Michigan Convention

The picture on the right shows the officers elected at the Michigan Convention; E. Ackerman, president, R. Clark, vice president and Wm. Pink, secretary.

THE 36th annual convention of the Michigan Sheet Metal, Roofing, Heating and Air Conditioning Contractors' Association, held in Bay City on March 9, 10 and 11, elected new officers as follows:

President—E. Ackerman, Bay City
Vice President—Robert Clark, Detroit
Treasurer—G. Every, Pontiac
Secretary—William Pink

New Directors

George McClery, Jackson
Bill Wood, Detroit
Lyle Latten, Muskegon
Bryan French, Pontiac

Continuing Directors

D. Cramer, Flint
M. VanAssche, Detroit
J. Erhardt, Grand Rapids
W. Bittner, Saginaw

The members of the heating division also elected new officers as follows:

Chairman—John DeHaan of Kalamazoo
Secretary—Jack Harrison, of Flint.

Discussion of Overhead

In the separate meeting of the heating division, J. Biddle of Detroit presented a blackboard discussion on how to determine and how to allocate overhead. Mr. Biddle defined overhead as "every cost of doing business which can not be marked against a specific job." Contrary to many contractor's beliefs, said Mr. Biddle, the one-man shop probably has a higher percentage of overhead (but not a dollar amount of overhead) than does the large shop employing numerous mechanics.

Mr. Biddle suggested that overhead be applied on productive labor rather than applied on the total of material and labor; excepting perhaps in the very large shop where a considerable volume of work is done wherein there may be a large percentage of labor and only a small percentage of material or vice versa.

In connection with the discussion on overhead, Mr. Biddle said he believed it would also be interesting to see just how contractors priced their jobs in order to acquire a satisfactory overhead percentage. He asked a number of contractors to explain their pricing



methods; first a contractor doing approximately \$8,000 total business per year; next a contractor with approximately \$80,000 gross volume per year; last one contractor doing approximately \$150,000 gross volume per year. Respectively, these contractors operated a one-man, a 6-man and a 15-man shop. To open the discussion, Mr. Biddle advanced his personal belief that sales be priced on the basis of approximately labor and materials equally 50 per cent; profit equalling 20 per cent; and overhead equalling 30 per cent on productive labor.

To price the job, one contractor suggested that if \$300 was labor and \$350 was material, he would price the job as follows:

Labor equals	\$ 300.00
Overhead equals \$375, or 125 per cent ..	375.00
Material equals \$700, or doubled in cost price	700.00
Total	\$1,375.00

the sales price of the job.

Using the same basic figures, another contractor said he followed a simple method whereby he takes the total of labor and materials, or \$650 in the example and multiplied this by 100 per cent markup to get a selling price of \$1,300.

Another contractor said that his method—broken down into percentages—is approximately as follows, with the total selling price equalling 100 per cent. He builds up the selling price on the basis of materials and labor equalling 60 per cent; overhead equalling 20 per cent; profit equalling 10 per cent; and commission paid for sales equalling 10 per cent.

Licensing Law

As reported in previous years, the heating division of the association has given considerable attention to a licensing law to be applicable to all contractors installing heating equipment in the State of Michigan. This proposed licensing law has been placed before the legislature but has never received favorable acceptance by the legislature or by legislative committees. J. Biddle, who was the secretary of the state association during the time the licensing law was before the legislature, reported that as of today the

legislature does not seem inclined to accept any recommendations for state licensing laws of any kind whatsoever.

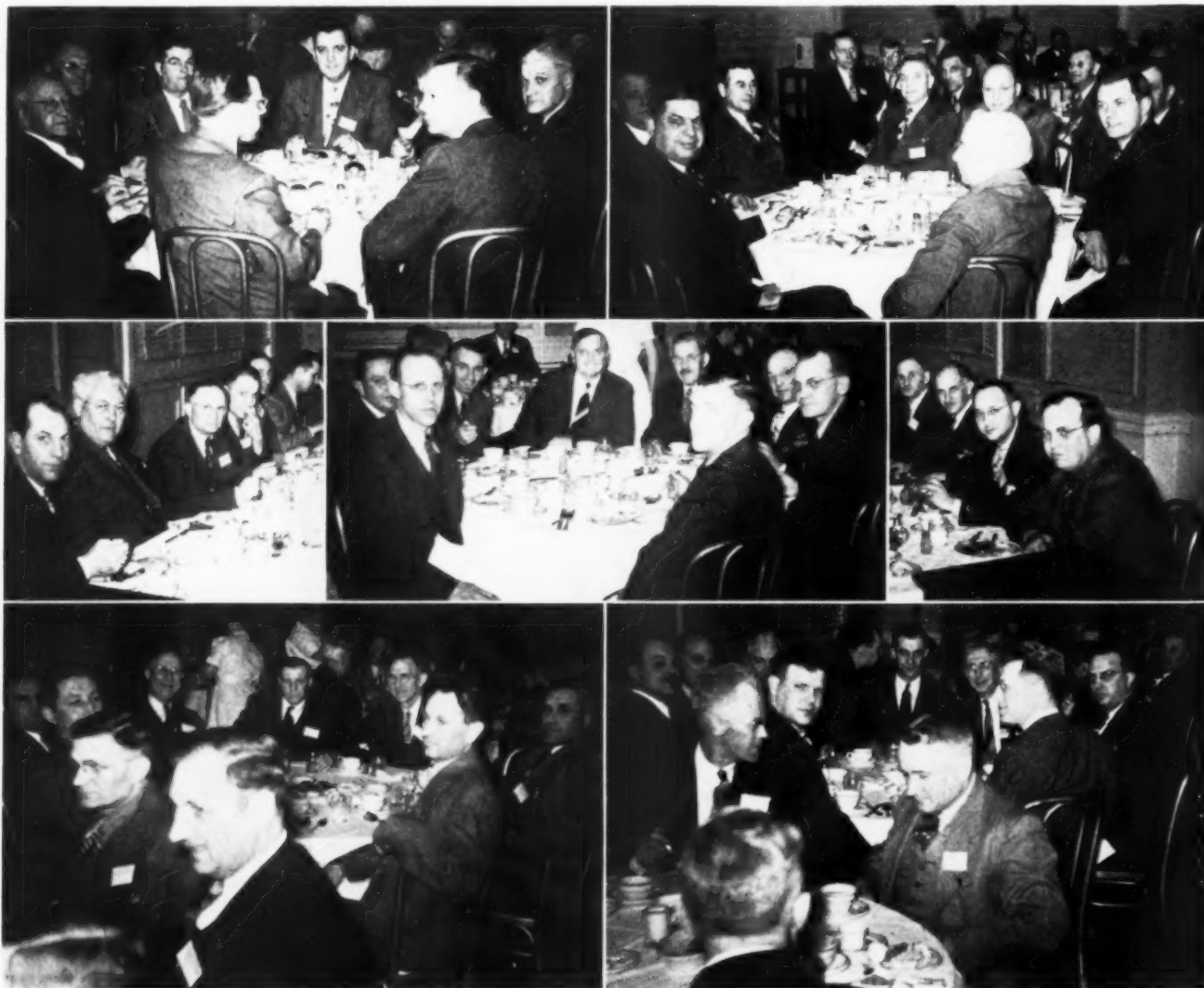
He suggested that the same benefits might be obtained through an act which sets up a State Board whose duty it shall be to prepare a set of installation standards covering the design and installation of gravity and forced warm air heating systems in houses. Such standards should be restricted to small commercial jobs and residential structures. The law might make it a felony for anyone to install a system

community to install heating systems at a very nominal cost—say \$1.00 per job.

The heating division licensing committee agreed to give consideration to this proposal. If the committee finds the legislature agreeable to such a proposal, the committee will then suggest the appointment of a state-wide committee to prepare the necessary standards and the legal form of ordinance.

General versus Subcontractor

Boyd H. Armiger, F. H. Martin Construction



Sorry to interrupt the meal, boys!

which violates any of the provisions of the standard. The law might also make it possible for a community to adopt a licensing act or an inspection service and to issue permits providing the local law equals or exceeds the state law. In order to avoid requiring a contractor to obtain numerous licenses under such an act, Mr. Biddle suggested that a reciprocal agreement be incorporated whereby communities close together could grant permission for contractors outside the

Company, Detroit, discussed briefly some of the relationships between general contractors and subcontractors. He said that there was too much of the feeling that all general contractors are chiselers and that many of the bitternesses which have existed for many years ought to be forgotten. It is probably true, he said, that some general contractors do indulge in detrimental practices such as bid peddling, but on the other hand too many subcontractors are too slow

and too indifferent in getting their bids in on time. Subcontractors are claiming that when they file bids early, the general contractor peddles the bid—therefore the only way such differences of opinion can be settled is by both parties getting together and agreeing upon some basic procedure to eliminate the evil.

Mr. Armiger suggested that one method of overcoming this particular difficulty might be for subcontractors to get together and agree to file no bids with general contractors who indulge in this bid-peddling practice and, further, for subcontractors to agree among themselves not to reduce bid prices when asked to do so by a general contractor.

One general contractor practice which is presently arousing much criticism is the complaint that too many general contractors are "back charging" at the completion of jobs, giving the subcontractor no warning that these back charges are coming.

The National Association

First Vice-President R. E. Walsh of the Sheet Metal Contractors National Association called attention to the fact that whereas last year the National association could only claim things proposed to be done—this year most of the things have been done and many others are in process of being done. He reported that through the efforts of the National association, there has now been organized in the state of Minnesota a new state-wide association which has already attracted to membership practically all of the responsible contractors in Minnesota. And he further reported that for the first time in history the cities of Minneapolis and St. Paul have gotten together and are working in harmony on such common problems as wage agreements, working conditions, construction and installation practices.

Mr. Walsh called attention to the recommendations of the National association's National Labor Relations Committee as issued in Bulletins No. 5 and 6 of the National association. In brief, Bulletins 5 and 6, he said, recommended that local groups of contractors negotiate with union labor only on wages and working conditions and refuse to negotiate on such innovations as welfare funds or holidays with pay, or vacation with pay. Wherever the union insists that these innovations be discussed, Vice-President Walsh recommended that local groups refuse to negotiate on these innovations and pass the information up to the National association's Labor Relations Board for negotiation among the top officials.

Minnesota Program

Mr. Walsh cited one example of the beneficial aid of a program in Minneapolis, St. Paul and Duluth, labor asked the various groups individually to discuss these innovations. In turn each local group refused to discuss these innovations and referred labor to the National Labor Relations Board. The result is that only wages and hours are being negotiated and the contractors believe a favorable agreement will be arrived at.

Mr. Walsh pointed out that the National association can continue to operate only if there is increasing membership and increasing funds with which to do

many of the projects the association has under way. He also announced that the National association's bookkeeping committee had finally decided upon a satisfactory system and the association is now preparing to offer this bookkeeping system to members at a very nominal sum. He explained how the National association Apprentice Training Committee prepared some months ago a suggested Apprentice Training Program as did the Sheet Metal Workers' International Association; sub-committees of both organizations meeting early this year have drafted a co-ordinated program and this will be announced very shortly. Mr. Walsh asked all members of the Michigan association to give serious consideration to membership in the National association and if they believe the program of the National is worth support, they should join as full-fledged members.

Small Business Problems

Some of the problems of small business were presented by Ed Wimmer, vice president of the National Federation of Small Business. Mr. Wimmer announced that he personally has made more than 225 speeches in the last year asking legislative bodies to give particular attention to the problems of the small business man. He pointed out that the average new congressman in Washington knows almost nothing about international and economic factors which are influencing American business life and stated that proper consideration is also being jeopardized today by jockeying on the part of many members of Congress and in both parties in order that the members and the parties may be in a favorable position for the presidential election of 1948.

Today, said the speaker, the United States remains the only island of capitalism in a sea of lost hope and various types of "isms." On the bad side, he reported, Washington is literally crawling with people who seek to overthrow capitalistic America and who wish to see some type of "ism" economy instituted. Not only are there individuals proposing such changes but the speaker claimed that there are national organizations doing the same thing—some of these organizations are going so far as to publicly announce that America must get rid of capitalism if America is to live. One most important problem, said the speaker, is the subject of the national debt. Whereas in 1940, the national debt was just over 36 billion, the debt today is over 263 billion, and no government has yet succeeded in borrowing more than its taxable worth.

The speaker said that with 40 per cent of the nation's wage earners owning only one per cent of the nation's worth, it is not conceivable that this part of the population will care much in a depression what happens to owners of stocks and bonds and property. Mr. Wimmer condemned the campaign to promote consumer co-operatives which pay no taxes and coupled with chain store organizations, are removing from American economic life much of the opportunity for an individual to start a business of his own. It is to offset this tendency that the National Federation of Small Business group is trying to awaken American business men to the dangers inherent in the present trends.



At the right is pictured a family group that is a feather in the cap of the Ohio Association. Three generations are shown—Conrad F. Lumm in the center seated between his two sons, John R. Lumm and Albert H. Lumm. Standing are the three sons of Albert Lumm; Wm. C., Robert P. and Albert H. Lumm, Jr. John R. Lumm is with Revere Copper and Brass, but all the others are associated with the A. H. Lumm Company of Toledo.



The pictures above were taken at the Ohio banquet and display the usual assortment of cheerful, joyous, glum and disinterested faces that one observes at such a function. In one case the food was quite engrossing.

The Ohio Convention

OHIO Sheet Metal Contractors' Association, meeting March 24, 25 and 26 in Toledo, elected officers for the coming year as follows:

President—Philip C. Young, Cincinnati.

Vice-President—Robert Spragg, Columbus.

Secretary—W. Ed. Bogen, Columbus.

Treasurer—Clarence Christen, Toledo.

Directors for three years: William L. Orton, Akron; Clarence Christen, Toledo; J. Jacobson, Cincinnati.

Directors, two years: William Lumm, Toledo; Robert Spragg, Columbus; W. Ed. Bogen, Columbus.

Directors, one year: M. J. Cutter, Cleveland; A. J. Hoke, Dayton; Philip C. Young, Cincinnati.

Stainless Steel and Its Uses

Jay Terry, Development Engineering Department, American Rolling Mill Company, speaking on stainless steel and its uses outlined the various types of stainless steels now in popular use and declared that after a number of years of varied experience stainless

steel, in general, shows no failures insofar as sheet metal manufacturing or fabrication or service is concerned. Mr. Terry emphasized that in fabrication, approximately 25 per cent more power is required in equipment as compared to galvanized or black iron; also that stainless steel has approximately twice the tendency of mild steel to spring back, so material must be over bent in forming. He explained that stainless steel work hardens in fabrication; therefore forming operations should be done in one movement of the machine. The speaker recommended protection during forming operations—one simple means is to apply paper with wallpaper paste over the finished surface and let this paper remain in place until all forming operations are completed. He recommended shearing with sharp blades set at approximately one to two-thousandths of an inch clearance.

Welding of all kinds is comparatively simple providing carbon arc welding is not used because the carbon particles adhere to the stainless and eventually

rust, giving the steel surface a mottled appearance. For spot welding a hard copper electrode, preferably cooled and having a domed tip has been found most suitable. Mr. Terry recommended that when soldering is done, the surface should be roughened and tinned, using any patented stainless steel flux, but the flux should be carefully neutralized by washing after the soldering is completed. He emphasized that contractors should not use steel wire brushes to finish welds because steel particles embed in the surface but brass or copper or stainless steel brushes should be used. If the steel does pick up rust particles, the rust can be removed using nitric acid solution.

The National Sheet Metal Association

President Patrick S. Varden of the Sheet Metal Contractors' National Association presented a splendid summary of the accomplishments of the National association during the last year. He emphasized that the need for strong local, state and national associations is more important today than ever before in the history of our industry and only through strong associations can the many problems now confronting the industry be solved. He declared that the National association now is in a position to meet these problems; has re-

ard of living, he said, was given to us by our forefathers and we must see to it that these standards of living are passed along to our successors and not lost in the confusion which exists today. We must now do our part to preserve free enterprise—it is up to our associations and our contractors, he said, to be ready at all times to combat the ideologies and "isms" which are so prevalent today—only a strong national association working through strong state and local association can preserve our jurisdiction and our free enterprise system. Freedom of enterprise has made America what it is but all men in all business must be ready to fight for our freedom if free enterprise is to exist.

President Varden urged all contractors to give serious consideration to joining the National association on the basis of the record which the National association has developed during the past twelve months.

Americanism

D. E. Dieterle, president of the Toledo Sheet Metal and Roofing Contractors Association, welcomed delegates and members to Toledo. He quoted from the final address of General Stillwell to his troops in which the general said "Organization can remake and can maintain America according to the standards which



On the left are the newly elected officers of the Ohio Association: Clarence Christen, treasurer; Philip Young, president; Robert Spragg, vice president, and W. E. Bogen, secretary.

ceived recognition from government, labor and the construction industry in general, and has been represented on committees seeking to obtain better construction industry practices.

One of the very important accomplishments cited was the establishment of the Labor Relations Committee; President Varden pointed out what the National Labor Relations Committee has done in the way of urging local associations and groups to negotiate labor contracts only on standard wages and hours and to refuse to negotiate such innovations as welfare funds, vacation pay, holiday pay, and to pass along all such requests from labor to the National Labor Relations Committee for negotiation between the officers of the two National organizations. President Varden also pointed out that the National association is urging contractors, in wage negotiations, to ask for time and one-half for working periods beyond forty hours, especially on Saturday, and suggests that labor's business agents have their members on the job at beginning time and remaining on the job until quitting time.

President Varden suggested that both labor and management have the grave responsibility of maintaining the American standard of living; this stand-

all soldiers wish to see maintained; soldiers can make America anything they desire if they will only co-operate and work together." Mr. Dieterle pointed out that there is in this statement a very basic principle: American business men through strong associations can also make America into the type of country we all desire.

Mr. Dieterle is the Americanism chairman of the American Legion in Ohio, and as such, declared that every man should work to combat subversive teachings which are now distorting much of our education throughout universities, high schools, and all types of private schooling. These doctrines, insidiously wedged into our educational program are creating influences which in later years will have to be combatted by the then citizens of our country.

Panel Heating

H. F. Randolph, International Heater Company, presented a discussion of panel heating with warm air. Mr. Randolph said "our industry has been guaranteeing certain temperatures at certain outdoor conditions and in general we are furnishing these specified conditions, but buyers are demanding comfort and

comfort is not necessarily attained by indoor temperatures because certain other characteristics of a heating system such as air movement, humidification, cleaning, exert definite influences over the comfort conditions prevailing indoors." He explained how the body loses heat to cold surrounding surfaces or cold air and these surrounding cold surfaces create a condition of chill in the body. He also explained how difficult it is to provide indoor comfort for all members of a family where old people may require high temperatures and young people want low temperatures; also some people are more susceptible to draft and air movement than are others; some people are highly sensitive to small temperature changes to which other persons are immune.

Accordingly, said the speaker, the structure itself is highly important and no system, no matter how good, can satisfactorily heat an improperly constructed dwelling. Any means which raises the inside surface temperatures of a structure is good and storm sash, insulation, thermopane glass, and other insulating materials all contribute to the easier maintenance of satisfactory indoor comfort.

Mr. Randolph by slides then showed the ceiling warm air panel heating system devised by engineers of the International Heater Company and showed how this ceiling panel system is constructed and operated and calculated. A typical warm air ceiling panel was described in the February issue of *AMERICAN ARTISAN*—the particular installation Mr. Randolph cited is constructed much the same and operates with the same characteristics.

Mr. Randolph declared that earlier statements that comfort is possible with panel heating at air temperatures of 68 degrees or lower are not a fact because air temperatures must be and usually are as high with panel heating as with the conventional convection system. Ceiling panels are advantageous primarily because the ceiling area is not obstructed by equipment or furnishings; the air passing through the panel can readily be guided so that the warmest air blows first along the coldest areas; even small closets and offsets in rooms can easily be heated with ceiling panels; and most important of all, higher temperatures of the air can be maintained. In this connection, Mr. Randolph stated that the maximum permissible surface temperature of a floor panel is probably in the neighborhood of 85 degrees, whereas the surface temperature of a ceiling panel can be as high as 115 degrees without any discomfort to the occupant. This higher temperature serves to make for more efficient operation of the heating plant, permits increased circulation of air which in turn tends to equalize air temperatures across the panels and from room to room; and a ceiling panel is probably less difficult and less costly to construct. Mr. Randolph showed the construction of a typical ceiling panel by means of slides quite similar to the illustration in the February article in *AMERICAN ARTISAN*.

The Copper Situation

W. A. Amelung, Manager Sales Development, Chase Brass & Copper Co., Incorporated, went into

considerable detail to explain the situation confronting the copper industry before and during the war, emphasizing the extraordinary demands made upon the copper industry to supply the materials of war, and explained how postwar difficulties of labor shortages, strikes, lack of freight cars and raw materials production all have tended to slow down copper production since the end of the war. He pointed out that while production of copper and brass increased greatly during the war, most of the new facilities were in the hot rolled division and while these increased facilities can be used today, there is a limitation of material 24 inches in width in the hot rolled process. What is needed to get more copper and copper alloys on the market is an increase in the cold rolling facilities, he said.

He urged contractors wherever possible to use narrow material and when placing orders to give the jobbers the narrowest width the contractor can accept and if possible give the jobber several widths which can be used. Mr. Amelung said that in general and for the next few months the availability of copper does not present too favorable a picture.

Warm Air Engineering School

J. C. Miles, who will be remembered by many *ARTISAN* readers as a pioneer in forced warm air heating, described briefly some of the problems which existed when forced warm air heating was first introduced in the late twenties and early thirties. He pointed out how far engineering design has progressed from the early rule-of-thumb engineering up to the present when the National Warm Air Heating & Air Conditioning Association's numerous design and engineering bulletins make it very easy to accomplish precise engineering. The one thing which probably saved forced warm air heating during its early days is the fact that a forced warm air heating system is the most flexible type of heating equipment available then or now and through this very flexibility, many systems improperly designed and installed could heat the house by forcing the system.

Subjects Covered

Mr. Miles is now Director of Education for the Boston Technical Institute, which currently is offering GIs and civilians a 33-week course in training during which the student is instructed in the design and actual installation of warm air heating and air conditioning. The Boston Technical Institute program was described on page 138 of the March *AMERICAN ARTISAN*. Mr. Miles explained how the government has approved the school and its courses and how Veterans' Administration is constantly supervising the instruction. The government is paying the tuition and living costs for GIs attending the school. The school, he said, is teaching drafting, combustion, testing, shop practice, insulation, adjusting and balancing of all types of heating systems; also included is instruction in refrigeration and automatic firing devices such as oil burners, stokers, gas burners, etc.

Mr. Miles emphasized that the school does not

expect to graduate college trained engineers, but it does propose to give industry a competent engineer who can lay our plans and design warm air heating installations and knows enough so that he can supervise the shop fabrication and job installation of the system. Mr. Miles urged members of the convention to send their sons or some bright young man from their organization to the school and declared that the school would return to them a young man who was fully capable of carrying the load of engineering and installation superintendency.

Labor Relations and Management

On the subject of labor relations and management, Judge Amos L. Conn of Toledo described the formation and operation of the "Toledo Committee" composed of six representatives from labor, six representatives from management, and six representatives from the public. This committee considers controversies which lead to strikes and labor troubles in the Toledo area and is prepared to help labor-management relations if the following six-points are subscribed to by all parties:

- (1) The committee accords due recognition to labor for its rights, including the right to negotiate and bargain through its own agents, free of all outside influence.
- (2) The committee accords due recognition to management and its rights to manage including the right to direct the enterprise in all its operations.
- (3) The committee acts to see that all abuses of privilege are removed and exercises control over statements issued by representatives of labor or management to the public which statements may harm the negotiations or the particular problem under consideration.
- (4) In turn, both labor and management recognize that greatest productivity means reduced cost of production and in turn bring higher wages and higher standards of living. All members of the committee and all members of organizations co-operating with the committee, agree to abide by this fundamental fact.
- (5) Working through the committee, both labor and management agreed to recognize that differences will arise but can be lessened by mediation and arbitration and both labor and management agree to subscribe to this premise.
- (6) The committee and labor and management recognize that education is most important in all labor relations and the committee attempts to promote education of labor stewards, foremen, managers, workers, and even students in the Toledo schools in order that wider dissemination may be made of all the important facts which influence proper labor relations.

As a personal opinion, Judge Conn expressed the belief that some groups believe we must deal with labor by means of legislation under which the rights of certain groups are curtailed in order to protect

the whole of society, whereas other groups believe that through education these problems of labor and management relations can be solved by democratic processes. Judge Conn believes that in the end the educational method will prevail.

Copper and Copper Uses

Revere Copper & Brass Incorporated showed its picture "Copper and Copper Uses" which emphasizes the proper design of large copper gutters where expansion and contraction must be controlled by the use of a heavy copper sheet or the employment of certain stiffening members. This subject has been described in an extensive article published in *AMERICAN ARTISAN*. Any readers interested in the subject may get tear sheets of the article by writing to *AMERICAN ARTISAN*.

Business

The treasurer's and secretary's report for the previous year indicated that the Ohio association is in an especially favorable financial condition.

The resolutions committee presented a resolution urging that steel decking be fought for by sheet metal contractors instead of permitting steel decking to be included in the specifications of the structural or ornamental iron worker. The association will prepare a letter which will be mailed by local groups or local members to architects, engineers and general contractors, pointing out that steel roof decking is awarded to the sheet metal contractor and asking these specifics to include steel roof decking in the sheet metal contractor's contract.

The association also discussed, as a result of a resolution submitted, the National association's recommendation that employers negotiate with union labor on wages and hours only and to refuse to negotiate on welfare funds or holiday pay or vacation pay. It was disclosed that in certain areas in Ohio contractors are paying double time immediately beyond 40 hours and including work for Saturdays whereas in other areas time and one-half is granted by union labor beyond forty hours for Saturday work. The association believes that a uniform agreement should prevail throughout Ohio wherein time and one-half will begin after forty hours and for Saturday, with double time only on Sunday and beyond 48 hours of work.

Longtime Officers Retire

Readers of *AMERICAN ARTISAN* familiar with past Ohio conventions will recognize that among the officers and the directors elected for 1947, three old standbys were dropped from the roll of officers. These long time servants of the association are Joe Dersher of Toledo, Carl Gundlach of Sandusky, and William Feiten of Cleveland. The association resolved to send a letter of appreciation to these three members so that these men may know that the association throughout Ohio really appreciates the long service rendered.

The jobbers and manufacturers and representatives tendered a buffet supper and the association enjoyed its usual banquet with dancing on the final evening of the convention.



The Illinois Convention

Above are displayed some of the speakers who participated in the excellent program at the convention. They are W. B. Dumper, L. B. Allen Co.; Bill Ufer of Mercoid; W. L. Dulle, Souther Iron Co., and Rudy Guenther of Accurate Sheet Metal.

ILLINOIS sheet metal contractors to the number of 223 turned out for the 33rd Annual Convention of the Sheet Metal Contractors' Association of Illinois at the Hotel Jefferson, Peoria on March 24th and 25th. This attendance was greater than that at last year's gathering and was noteworthy in view of the terrific blizzard that struck northern Illinois on the 24th.

The convention was called to order by the president Edward M. Pluth, who welcomed all those in attendance and then turned the chair over to Edward G. Beeson, representing the Peoria Association in presenting greetings to the city to the convention.

Ventilation Opens Program

First on the list of speakers on the program for the convention was Rudy Guenther of Accurate Sheet Metal Works of Chicago, who spoke on the subject of "Farm Building Ventilation." Using the chalk-talk method of making his points clear to the audience Mr. Guenther gave an interesting discussion of the means of applying ventilation facilities to such buildings as chicken coops on the farm. In the course of questioning by the group the matter of backdraft when a ventilator is located near a high building, the speaker emphasized the point that there were some jobs of ventilation that could not be easily accomplished no matter what type of ventilator was used.

Second speaker of the morning session was W. Ballard Dumper, L. B. Allen Company and his subject was "Solder Problems" with emphasis placed on the practical or application side of the matter. At some length, he dealt with the difficulties of matching flux and solder and also covered the nature of some materials, such as stainless steel, which make effective soldering a problem that must be met by careful solder engineering. Mr. Dumper clarified the "eutectic" characteristic of solders and fluxes and told of the manner in which this was used to advantage on some soldering jobs. He recommended the use of internally-fired soldering irons on some metals since they need a constant application of heat and he also brought out the time saving possible with that type of iron. In the question period he cleared up a number of problems for individual contractors.

National Association

Frank E. Mehrings, president of the National Warm Air Heating and Air Conditioning Association presented two films developed by the Association. These were the films previously shown at the January convention in Cleveland, "A Course in Comfort College" and "Balancing and Adjusting a Forced Warm Air System." These excellent films put their message across in a clear and concise fashion and Mr. Mehrings indicated that the "Comfort College" film would soon be available for presentation to consumer groups in the dealer's communities as a merchandising aid to the dealer.

Control Problems

Bill Ufer of Mercoid, possessed of a wide reputation as a trouble-shooter, discussed the servicing of automatic controls and devoted a great deal of his time to emphasizing the importance of analyzing the problem to find the root of the difficulty when on a service call. Mr. Ufer brought out the fact that too many dealers presume that there is a control at fault and replace it when that may not be the reason for the break-down at all.

He outlined the proper method for wiring automatic controls and urged that every dealer or serviceman familiarize himself with the operations of the controls so that he will be able to determine whether they are functioning properly. (American Artisan will soon publish an extensive article on this subject by Mr. Ufer.)

Mr. William Ward of Ward Machinery Company next presented his views of the modern trends in utilization of power equipment in the sheet metal shop and also some pertinent points on the lack of promotional work in this field. He held up the amazing educational propaganda disseminated by the steel industry as an example of what is possible in creating customer relations. Of course the sheet metal industry is not of the same giant size as the steel industry but the same type of work could be done on a smaller scale.

To further carry home his points about the importance of power tools in the modern shop he discussed the difference in accuracy and performance

between a hand brake and a small power press brake. When all factors are weighed and considered it is likely that a definite financial advantage would lie with the power tool. The fact that a power tool can be fitted with a variety of dies to perform a multitude of jobs is only one argument in the favor of such equipment.

In conclusion, he reiterated his urging for the adoption of power tools and advised the dealers not to be hesitant about consulting their machinery salesman, when problems arose in the shop.

The meeting on Tuesday morning started off on an educational note as F. A. LaThomas of Revere Copper and Brass introduced the color film "Copper and Its Alloys" which is an intriguing account of the processing of sheet and other forms of copper and copper alloys.

W. L. Dulle of the E. E. Souther Iron Company spoke on the current spread of "Butane Propane Gas Heating." Part of this spread is accounted for by the lack of gas supply facilities in some areas and part by the fuel shortage, covering all types of fuels.

In the rural areas where butane propane heating is particularly applicable there is an apparent trend toward the use of automatic heat. Mr. Dulle quoted from a survey made by "Successful Farming" that indicated a desired increase of 300% in automatic heating but the survey further showed that 46% of those people did not know where to go to buy heating equipment. Apparently there still exists a fertile field for the sales story of the Indoor Comfort dealer and the sooner the new area is tapped the stronger its development will be as new advancements are made in heating and air conditioning.

The photos below were taken at the banquet which furnished a fine finish for what was a well-executed and well-attended convention in spite of the Big Blizzard.

OFFICERS

President—Walter Dennis, Decatur
Vice President—Joseph J. Walter, Ottawa
Treasurer—F. I. Eynatten, Peoria
Secretary—W. Rex Shaw, Jacksonville
Directors—Erwin A. Eichenberger, Peoria
Edward Pluth, Lincoln
George L. Folkers, Peoria
Vern Tucker, Canton
A. H. Schroeder, Champaign
George Bushman, Aurora
Ed. Schmidt, Edwardsville
R. H. Guenther, Chicago

Joe Walter gave a report on the activities of the Sheet Metal Contractors' National Association, telling of recent directors' meetings and he also urged all present to attend the national convention at the Stevens Hotel on April 28th.

Filter-Blower Discussion

The afternoon session started off with a bang with Lou Reining of Elwill-Reining giving some excellent reasons for the heating dealer to keep track of the condition of the air filters in the winter air conditioning systems that he installs. He emphasized the point that little sales resistance should be encountered in the sale of new filters if the dealer points out to the home owner just what a lowering in efficiency and raising in fuel costs will result from continued use of dirty air filters. A graphic description of just what takes place in the furnace casing when

(Continued on Page 140)



ASSOCIATION ACTIVITIES



Indoor Comfort Conferences

AT this point there can be little doubt that the Indoor Comfort Conferences are doing a fine job in educating the dealer and contractor in correct engineering methods for heating installations. A letter received by the Association after completion of a Conference in Nashville attests to this fact. Mr. Harding, president of that Association wrote, "...On behalf of the Nashville Warm Air Heating and Air Conditioning Association I want to say to you that in our opinion we do not know how it could have been more successful.

All of the material prepared by the Association was most adequate and understandable and when presented as it was by Mr. Voorhees it made a very fine impression on every man in attendance.

There is no doubt in my mind now but that there are more qualified warm air heating contractors now than ever before. Of course there were several amateurs who have just begun to get their feet wet, but these men are now in the game and the quicker we can put them on a good basis for figuring and presenting solutions to heating plans the quicker we will put them on a better standard."

Testimonials of this type lead the Association to believe that the time, effort and money involved in the Conferences has been well-spent.

Following is a schedule of the Conferences to be held within the next few months:

Columbus April 14 & 15
Cincinnati April 17 & 18
Toledo April 21 & 22
Fort Wayne April 24 & 25
St. Louis May 5 & 6

Scheduled but with arrangements incomplete:

Kansas City May 8 & 9
Omaha May 12 & 13
Des Moines May 15 & 16
Minneapolis May 19 & 20
Milwaukee May 26 & 27

Chicago, June 9 & 10; June 12 & 13; June 16 & 17;
June 19 & 20 (?)

June Convention

Mid-year convention of the National Warm Air Heating and Air Conditioning Association will be held at the Edgewater Beach Hotel in Chicago on the 5th and 6th of June.

Actually this particular convention will be held in two cities since the first day will be spent in Chicago while the second day will see the entire convention moving down to Champaign, Illinois to witness the dedication of the Association's new Research Residence.

Frank E. Mehrings, president of the Association, will make the dedicatory speech and turn the keys to the residence over to a representative of the University. It is hoped that Dr. A. C. Willard, President Emeritus of the University of Illinois, will be on hand to accept this new residence which replaces the former one that he had so much influence in building and maintaining.

This new residence, started last fall, is a part of the Association's continuing research program which has been conducted at the University of Illinois since 1918 and will be used as a practical laboratory to improve the standards of Indoor Comfort.

Reservations for the convention and dedication ceremonies are requested as soon as possible. Address George Boedener, National Warm Air Heating and Air Conditioning Assoc., 145 Public Square, Cleveland 14, O.

Fox Valley Open House

EACH year the Fox Valley Furnace & Sheet Metal Contractors Association holds an open-house meeting to which are invited the representatives of all the suppliers and manufacturers as well as non-member contractors operating in the association's area. The open-house committee reports that the 1947 Open House will be held April 22nd, in the shop of Joe Strotz at 469 High Street, Aurora, Illinois. As usual, there will be refreshments, speakers and a general get-acquainted program.

Coming Conventions and Meetings

April 25-26—Roofing and Sheet Metal Contractors' Association of Florida. Tampa Terrace Hotel, Tampa, Florida. John C. Caldwell, Secretary, P.O. Box 2987, Orlando, Florida.

April 28-30—Sheet Metal Contractors' National Association, Annual. Stevens Hotel, Chicago, Ill. Clarence J. Meyer, National Secretary, 567 Genesee St., Buffalo 4, N.Y.

May 20-21—Oil-Heat Institute of New England. Annual. Copley Plaza Hotel, Boston, Mass. Fred N. Beckwith, 839 Beacon St., Boston, Mass.

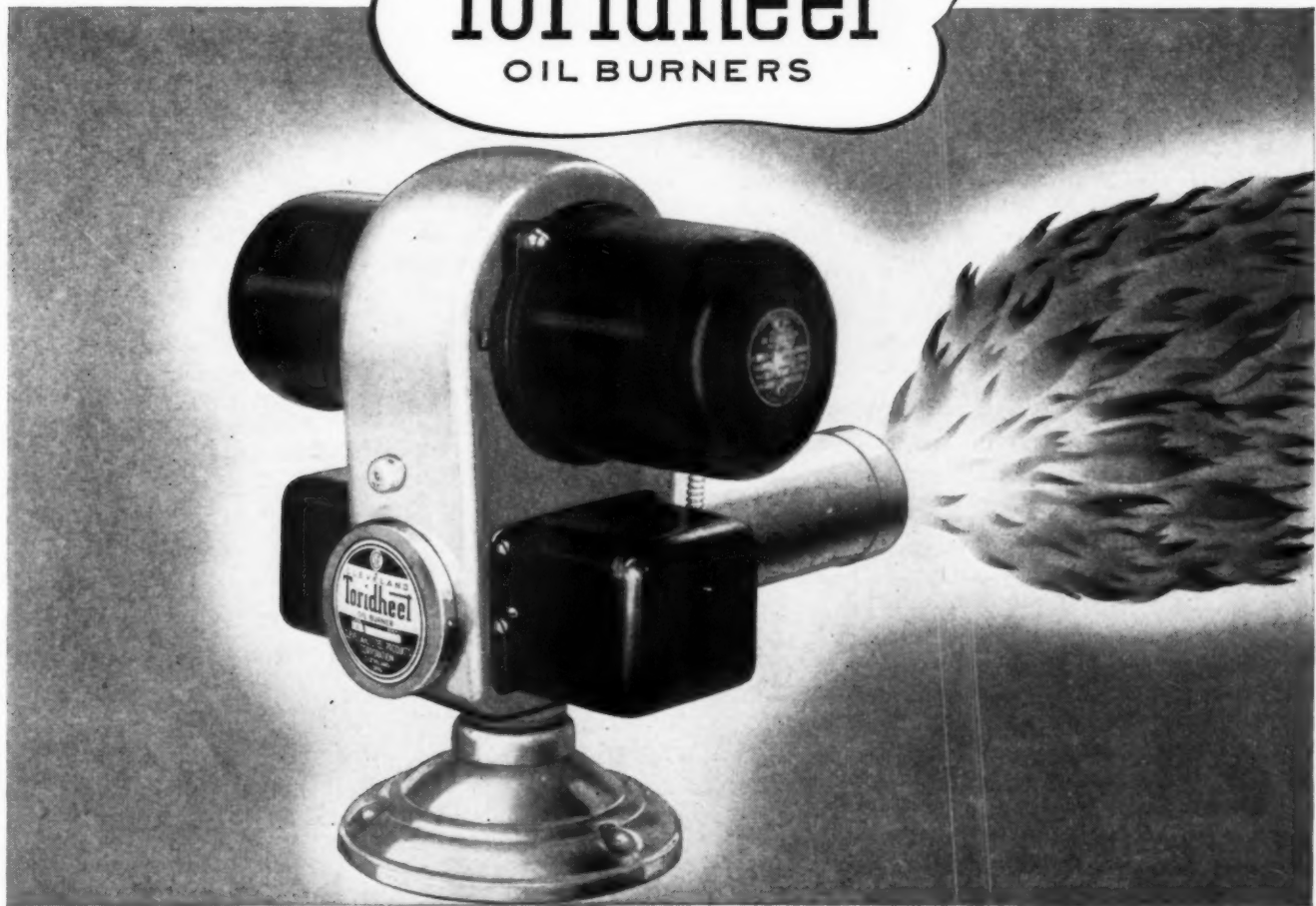
June 12-13—Carolinas Roofing and Sheet Metal Contractors' Association. Annual. Ocean Forest Hotel, Myrtle Beach, S. C. Joe H. Piper, Secretary, Box 599, Greenville, S. C.

June 16-18—Stoker Manufacturers' Association. Annual. Lookout Mountain Hotel, Lookout, Mountain, Tenn.

MODEL J

CLEVELAND
Toridheet
OIL BURNERS

GUN TYPE



First Gun Burner to Feature a
PRESSED STEEL BODY

First streamlined pressure atomizer burner with no exposed parts, its body is made of heavy gauge deep drawn, ductile steel. Strong, tough and unbreakable, it has the necessary rigidity to keep motor shafts always in perfect alignment.

Weighs approximately 92 pounds. Can be easily handled by one man. The steel body may get dented by extraordinarily rough usage but it will never

crack or break. Saves freight, saves manpower. Toridheet Model J features amazing quietness and economy.

A complete packaged unit, adaptable to M-H Electronic, Mercoid Visaflame or conventional controls.

Available to present Toridheet accounts about May 1st. Sorry, but newcomers will have to wait until third or possibly fourth quarter of 1947.

TORIDHEET DIVISION

CLEVELAND STEEL PRODUCTS CORPORATION, CLEVELAND 2, OHIO

Affiliated Canadian Manufacturers: Conroy Manufacturing Company, Ltd., Catharine St., St. Catharines, Ont.

**OIL BURNERS • OIL BURNER BOILERS • OIL WATER HEATERS
AIR CONDITIONING UNITS • COAL AND GAS FURNACES**

Association Activities . . .

SMCNA

The Sheet Metal Contractors' National Association has released the program for its convention which is scheduled for April 28 in Chicago at the Stevens Hotel.

1947 Convention Program

Monday, April 28

- 9:00 A. M. Registration—
- 11:00 A. M. Call to Order—
Patrick S. Varden, National President
Address of Welcome
Announcements
Appointment of
 Credential Committee
 Auditing Committee
 President's Nominating Committee
 Resolution Committee
Election of Floor Nominating Committee
 by members and delegates
- 12:00 M. Recess
- 12:30 P. M. Luncheon—
Address of Welcome by Mayor of Chicago
"Fabrication of Aluminum," Dr. George Perkins, Director of Technical Research, Reynolds Metals Company, Louisville, Kentucky
- 2:30 P. M. Call to Order—
Reports of Officers and Directors and Committee
Apprentice Training—Frank Kramer, Chairman
Architects & Engineers—J. E. Merrick, Chairman
Bookkeeping & Estimating — Charles Warning, Chairman
Government Relations—W. D. Wiedemann
Labor Relations—Louis L. Narowetz, Chairman
Membership & Publicity—Harvey L. Orton, Chairman
Roofing Committee—Richard E. Walsh, Chairman
Trade Relations—R. B. Brown, Jr., Chairman
Warm Air Heating—K. A. Cronstrom, Chairman
Ways & Means—Philip W. Olmen, Chairman
- 5:30 P. M. Recess
- 6:00 to 7:30 P. M.—Entertainment & Refreshments for members and their wives

Tuesday, April 29

- 10:00 A. M. Call to Order—
Announcements
President Patrick S. Varden
Report of Nominating Committees
Closing of Nominations
Immediately following the Reports of Nominating Committees a "Warm Air Heating" Forum will be held under the direction of G. A. Voorhees, Application Engineering Director of the National Warm Air Heating and Air Conditioning Association

"Selection of Gas Heating Equipment," D. K. Smith, Rochester Gas & Electric Corp., Rochester, N. Y.
Kenneth A. Cronstrom, Chairman

- 12:30 M. Recess
- 2:00 P. M. Continuation of "Warm Air Heating Forum"
Sheet Metal Fabrication & Ventilation Forum, E. B. Brown, Jr., Chairman
Labor Relation Forum, Narowetz & Dose, Chairmen with L. R. committee sitting as panel

5:30 P. M. Recess

Wednesday, April 30

- 10:00 A. M. Call to Order—
Announcements
President, Patrick S. Varden
- 10:15 A. M. Report of National Labor Relations Committee
Louis L. Narowetz, Chairman
Labor Relations Program
Address by Robert J. Byron, General President, Sheet Metal Workers' International Association
- 11:30 A. M. "The Copper Situation," Col. William A. Amelung, Manager of Sales Development, Chase Brass & Copper Company
- 12:00 M. Recess
- 12:30 P. M. Luncheon—
Address by Edward L. Ryerson, Chairman of the Board, Inland Steel Company
- 2:30 P. M. Call to Order—
President, Patrick S. Varden
Report of Forum Chairmen
Report of National Secretary
Report of National Treasurer
Election of Officers
Installation of Officers
- 5:30 P. M. Adjourn
- 7:00 P. M. Banquet—
Address by New President
- 9:00 P. M. Floor Show—Dancing until 1:00 A. M.

Canada

EARLY in March, the Canadian Chapter, National Warm Air Heating and Air Conditioning Association moved its activities into the far west with warm air heating schools at Vancouver, March 3rd through March 6th, and Calgary, March 11th through March 14th.

Mr. A. W. Givin, Toronto, a director of the Canadian Chapter, officially opened the Vancouver school, where thirty-five associate members were in attendance. Lectures were under the supervision of Fred Taylor, Chapter Engineer, assisted by Mr. O. J. Hatch, Winnipeg, and Mr. K. Dinham, Vancouver.

At the Calgary school, Mr. G. E. Moll, chairman of the local committee, officiated at the opening. Sixty-four associate members were on hand, mostly from Alberta, but with a few from Saskatchewan.

(To Page 104)

being exclusive costs her a pretty penny...



RANGE BURNER

All steel construction, with close-fitting shells and cover plate for quicker heating, steadier flame. Easy to install. Listed as standard by Underwriters' Laboratories.



PRESSURE BURNER

The most efficient and practical pressure burner for any size home. Capacity 0.6 to 6.0 gal.



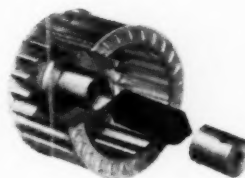
BUT THESE 4 EXCLUSIVE ABC ADVANTAGES **MAKE MONEY FOR YOU!**

Because these engineering advancements are available only in ABC equipment and because customers want the increased efficiency, greater economy and quieter operation they provide . . . you cash in! You'll find sales come easier while profits go higher when you sell ABC burners and water heaters.

1

ABC COUPLING

Designed to eliminate end thrust. Makes installations easier, replacements more economical and driving more ample and resilient.



2

GOVERNOIL NOZZLE

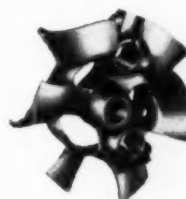
A nozzle that really delivers the stamped rating! Also provides correct angle and spray for every boiler and furnace.



3

PERI-SPIN TURBULATOR

Spins air only around outer periphery of the air tube, giving it just sufficient whirl to produce proper mixing action when air current comes into contact with oil spray.



4

ABC CHOKE

Shapes the air current so that the air is expelled at the correct angle to control the flame and properly distribute it through the channel. Air and oil streams join at an exact point and an exact angle.



AUTOMATIC

BURNER CORPORATION

1823 CARROLL AVENUE, CHICAGO 12, ILLINOIS

Association Activities . . .

(From Page 102)

First two days of the schools were spent in determining building heat loss values and completing gravity warm air heating layouts; the remaining two days were devoted to forced warm air heating theory and practice.

All of the work was based on the Association codes and manuals which incorporate the principles involved in the proper design and installation of winter air conditioning systems and which are recognized as the authoritative texts in the warm air heating industry. Studies at this school were limited to buildings having a heat loss not in excess of 150,000 B.T.U.'s per hour.

Wisconsin's Officers

The photo below shows the officers elected at the recent convention of the Wisconsin Association; Front row, G. F. Wolff, first vice president, W. J. Hielscher, president, H. J. Ortwig, second vice president, Paul Biersach, secretary.

Back row, Howard Benning, fifth vice president, Frank Kramer, treasurer, Louis Stefanik, sergeant-at-arms.



Fox Valley Monthly Meeting

THE March monthly meeting of the Fox Valley Furnace & Sheet Metal Contractors Association held on March 18, had as its guest speaker Lester Wise of the Steel Sheet Sales Department of Ceco Steel Products Corporation, who presented some facts on the present shortage of galvanized iron. Mr. Wise stated that present scarcities may be traced back to the war, when, for example, certain fabricators in the Chicago area were given the job of producing pierced landing mats, each mat requiring approximately 3500 tons of steel to produce 1 million square feet of mat and, as used, an average flying field required from 2 to 2½ million square feet of steel surface. To produce this extensive requirement, and others using large quantities of steel the mills were forced to dig up every pound of scrap available and, in addition, Amer-

ica used up much of its resources in iron ore and primary steel so that today, materials are not being produced because of a lack of such basic ingredients as scrap and ore. Mr. Wise pointed out that the whole pipe line from mill to jobber to dealer to customer, is absolutely bare and months will be required to fill up the pipe line.



Fox Valley Officers; front, Bill Stevens, secretary, Clayton Evelein, treasurer, Fred Lamp, president, Mervin Lohbauer, second vice president; rear, member, William Klinky, director, George Bushman, first vice president, Fred Nolting, director.

Solder Problem

William Baumgartner, of the Division Lead Company, presented some information on the shortage in fifty-fifty solder. Mr. Baumgartner stated that the present shortage is due to a lack of tin and this in turn is caused by a drastic reduction in the amount of tin imported from foreign countries. The speaker pointed out that since April, 1946, 50-50 solder has been available, but only for certified uses, such as containers, food service etc. As of February, 1947, 50-50 solder was once again made available without certification but if the supply reduces drastically, solder may be returned to the certification list. Our industry, said the speaker, can prevent this situation if contractors will use 50-50 solder on outside work where a good solder is required and use 60-40 solder on inside work where soldering conditions can be controlled.

Wages

J. D. Wilder, Editor of American Artisan, called attention to the Sheet Metal Contractors' National Association's Bulletin Nos. 5 and 6, dealing with suggested programs for negotiating wage contracts. The National Labor Relations Committee is asking local groups and associations to negotiate only on wages and working conditions and to refrain from negotiating on welfare funds or vacations with pay, or holiday pay.

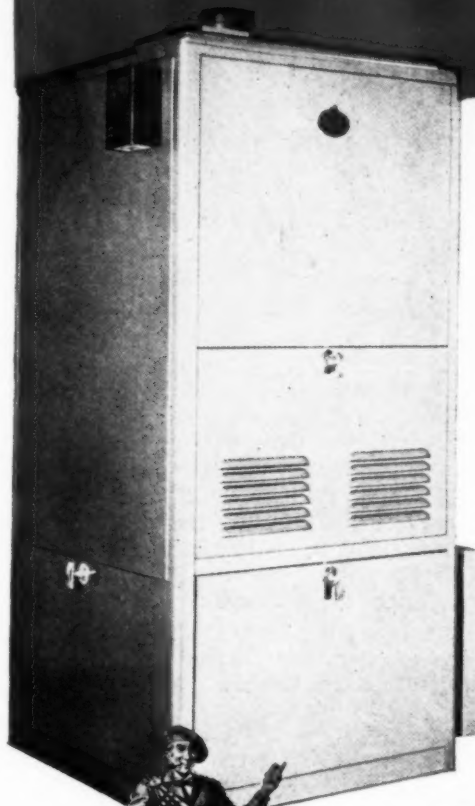
Past President Jack Stowell and several other members said in their business there are some cancellations appearing—some cancellations from home owners who previously ordered modernization of their heating systems; also some cancellations from industrial users who find the prices of the modernization too high; also cancellations from people who wanted new types of heating equipment but now say they will wait and see if prices won't come down.

DATE	AMOUNT	NET	DATE	AMOUNT	NET	DATE	AMOUNT	NET	DATE	AMOUNT	NET
OCT. 12	2.86	2.67	9.46	8.72	1.73	1.578	1.268	1834	16.86	20.98	19.2
TOTAL 2.86 2.67 9.46 8.72 1.73 1.578 1.268 1834 16.86 20.98 19.2											
LAST NET PAYMENT DATE FRIDAY, NOV. 3, 1939											
RATE SCHEDULES WILL BE MAILED ON REQUEST											
THIS BILL MAY BE PAID ON OR BEFORE THE LAST NET PAYMENT DATE ONLY											
AND WITHOUT ADDITIONAL CHARGE AT ANY OFFICE OF THE CLEVELAND TRUST CO. OR CENTRAL NATIONAL BANK											

These Low Gas Bills Prove

THE HI-BOY FILLS THE BILL

for Efficiency and Economy



Average Monthly Cost \$8.63, allowing \$3.50 per month for hot water, baking and cooking.

THE Cor-o-aire Hi-Boy automatic heating and winter air conditioning unit for basement and utility room installation, is popular because it's economical.

Shown here is the two story home of Cor-o-aire Hi-Boy owner, John Matthews of Cleveland. Shown also are his gas bills, irrefutable evidence of the Hi-Boy's economy of operation.

There's just one simple reason for the Hi-Boy's efficiency and economy of operation and its nation-wide popularity . . . it's the new, exclusive, patented, cast iron Venturi tube heat exchanger.

The Cor-o-aire Venturi tube heat exchanger consists of 46 tubes which allow the hot gases 28 feet of flue travel as compared to a maximum of

8 feet in ordinary heaters. The long flue travel permits the heat exchanger to extract more heat and transfer it to the cold air which is spun 'round 4 or 5 times against the outside walls of the cone shaped tubes (like water passing through a funnel).

The Cor-o-aire Hi-Boy is ruggedly constructed, has a beautiful bright blue hammerloid finish and is equipped with a large blower, filter and all the most modern automatic and safety devices.

Users everywhere are asking for an efficient gas fired basement heater. These low gas bills prove that the Cor-o-aire Hi-Boy is the basement heater that satisfies the popular demand. Write today for further information.

THE COR-O-AIRE HEATER CORPORATION
CLEVELAND 15, OHIO

Coro-aire

"THE SCOTCH HEATER" — HEATS A HOME FOR PENNIES A DAY

Association Activities . . .

Wholesalers Association

ON January 25, in Cleveland, representatives of wholesale heating concerns organized a new association—National Heating Wholesalers Association—a completely independent organization with no tie-ins with any other association. The new association expects that wholesalers' problems can be discussed freely and certain needed betterments in relations with manufacturers may be secured.

Officers elected are as follows:

President:

A. H. Johnson, Jr., A. H. Johnson Co., Pittsburgh, Pa.

Vice-President:

John E. Phillips, Stelwagon Mfg. Co., Philadelphia, Pa.

Sec'y-Treasurer:

J. E. Eckstein, Eckstein Co., Pittsburgh, Pa.

Board of Directors:

A. E. Bergman, A. E. Bergman, Inc., St. Paul, Minn.

O. P. Brauer, A. G. Brauer Supply Co., St. Louis, Mo.

W. J. Busser, Busser Supply Co., Lewisburg, Pa.

A. G. Earnshaw, Earnshaw S.M. Supply Co., Mansfield, Ohio.

Chas. W. Gold, Atlantic Coal & Oil Co., Greensboro, N. C.

F. R. Green, Des Moines Stove Repair Co., Des Moines, Iowa.

Albert O. Jensen, Wholesale Furnace & Supply Co., Omaha, Nebr.

John J. Moran, Baker Specialty & Supply Co., Logansport, Ind.

John Robertson, Robertson Heating Specialty Co., Alliance, Ohio.

A. M. Vorys, Vorys Bros., Inc., Columbus, Ohio.

The following organizational business was transacted:

1. This organization shall be known as the "National Heating Wholesalers Association."

2. The purpose of the Association shall be to: (a) bring before it's members and the industry any matters tending to improve business conditions and efficiency; (b) publish trade customs that are or may become established; (c) lend it's offices to settle disputes; (d) inform members of legislation and the requirements of laws pertaining to their business; (e) collect and disseminate statistical and other information pertinent to the business of it's members.

3. (a) Initially there shall be one class of members who shall be the active members of the Association. Additional classes of members may thereafter be created under such rules of eligibility and with such privileges as may be prescribed by the Association, but only active members, and not such additional classes, shall have the right to vote; (b) **ELIGIBILITY:** Any wholesalers of heating products doing busi-

ness and carrying an adequate stock in the United States may apply for membership in the Association; (c) **PRIVILEGES:** All active members in good standing shall be entitled to the rights and privileges of membership, but no member shall by reason of his membership have any proprietary interest in the property or funds of the Association; (d) **ADMISSIONS:** All applications for admission shall be upon forms supplied by the Association and shall be accompanied by—(1) letters of recommendation from members whose places of business are nearest that of the applicant; (2) payment of an initiation fee of \$25.00. Applications for admission received by the Association shall be submitted to the Board of Directors for it's approval. All applications approved by the Board of Directors shall then be submitted for approval to a vote of the members present at the next regular or special meeting of the Association and shall be deemed accepted upon receiving the favorable vote of a majority of the members present.

4. A Constitution and set of By-Laws of the Association shall be prepared and submitted to the members for approval and adoption as soon as possible.

5. Membership dues shall be based on annual sales of products of the heating industry for the most recent year for which figures are available.

6. Those present, if heating wholesalers, shall be considered "Charter Members" upon signing a regular membership application and upon payment of the \$25.00 initiation fee.

7. The next meeting of the Association will be held on June 4, 1947, at the Edgewater Beach Hotel, Chicago, Ill.

Dayton

A BRIEF report has come in of the activities of the Sheet Metal, Furnace & Roofing Contractors Association of Dayton, Ohio. The apprentice problem has been a major concern with this association since they have a severe shortage of journeymen in that area. However, now through the efforts of the Board of Education and the aid to be obtained from the GI Bill of Rights a trade school is in operation and is expected to alleviate the shortage.

They also report that their situation as to supplies of materials is no better than that of any other area but even that picture seems to show signs of brightening.

A. J. Hoke, Sec'y.

Hammond, Indiana

THE Associated Air Conditioning & Sheet Metal Contractors held their regular meeting on March 26 and discussed the serious sheet situation as well as the lack of mechanics and helpers, and the doings at the various state conventions.

The secretary was appointed a committee-of-one to find a suitable place for an association picnic and report at the next meeting.

A. R. Harris, Secretary

The Trail

to Sales

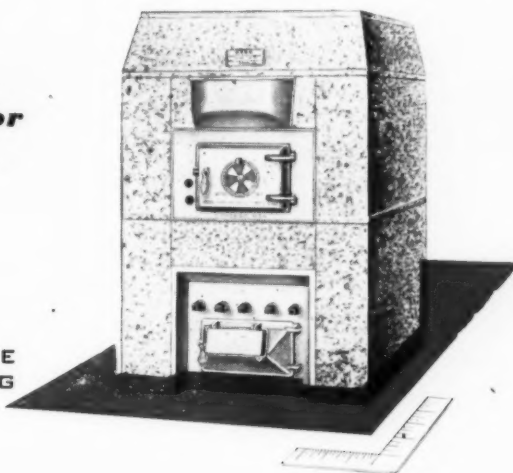


The trail signs to success are, once again, the quality features that sell folks on a name—and keep them sold after years of experience with a product. HESS furnaces are famous for high calibre workmanship and engineering developments—for leadership in providing better heating for better living. Valuable, indeed, will be a HESS *Warming & Ventilating Company* dealership in the busy, building years ahead. Fortunate will be the man who features HESS Welded Steel Furnaces, Automatic Oil Burners, Automatic Coal Stokers, and HESS Blower Filter Units. For, behind him will lie the more than 74 years of HESS experience in building quality heating equipment . . . a service that is recognized by the thousands of satisfied HESS customers.

DEALERS

*Write today for
details on the
HESS line.*

ON THE SQUARE
RADIANT HEATING



HESS
Since 1873

WARMING & VENTILATING CO.

1211 So. Western Ave., Chicago 8, Ill.

Certified Performance

Proven by **CAL-TECH** *tests!*

Rigid tests have been completed on the Airjet by the California Institute of Technology. Results of these certified tests prove that Airjets are the lowest cost per cubic foot of air moved on the market.

NOTE THESE PROVEN FEATURES

1. Positive air suction for all inclinations of the Airjet.
2. No down drafts regardless of exterior wind direction.
3. High efficiency under all air speeds.

For additional information see the Architectural and Mechanical Sections of SWEETS 1947 catalog. A few dealer-territories are still available—write us for particulars.

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C.R. Gelert
C O M P A N Y
35 NORTH RAYMOND AVENUE
PASADENA 1, CALIFORNIA



VENT FLUE CAP
4" and 6" diameter throat dimension

AIRJET

**ROOF VENTILATORS
and VENT FLUE CAPS**

SEND FOR COMPLETE INFORMATION

C. R. GELERT COMPANY
35 North Raymond Avenue
Pasadena 1, California

Please send me your new catalog on Airjet Roof Ventilators and Vent Flue Caps.

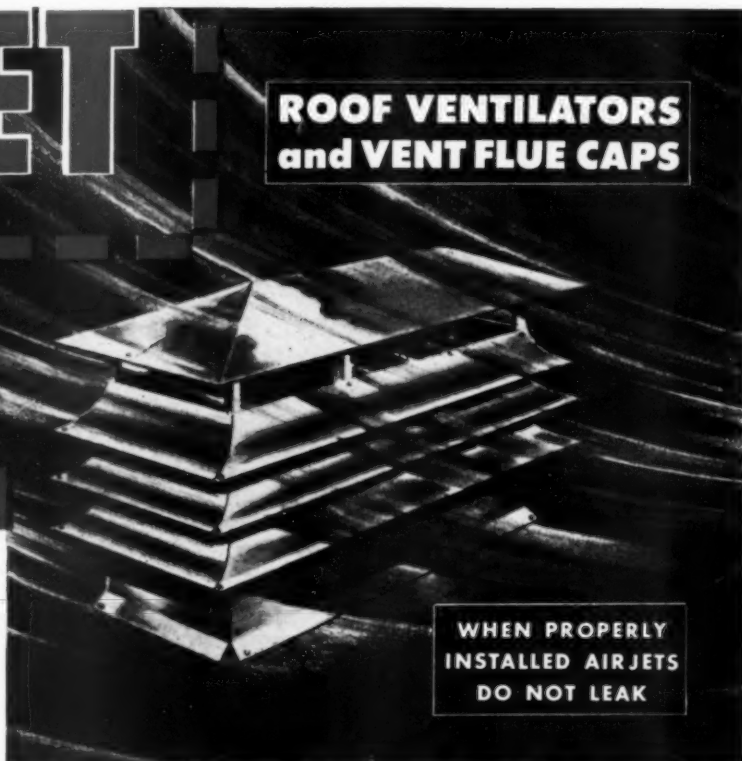
NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

**WHEN PROPERLY
INSTALLED AIRJETS
DO NOT LEAK**



Equipment Developments

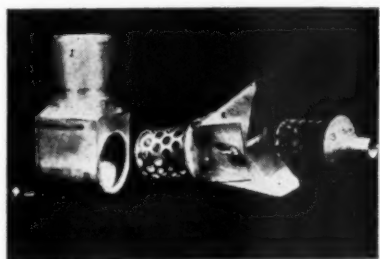
For your convenience a number has been assigned to each item. Circle the items in which you are interested on the coupon on Page 126 and mail to us

△ Indicates manufacturer not listed in 1947 Directory.

• Indicates type of product not listed in 1947 Directory.

△ 35—Dust Hood

Patents have been granted to Morris Litman for a universal swiveling, adjustable hood for grinding wheels that is designed to eliminate many of the bad characteristics of previous hoods. Wing nuts are used to provide adjust-



ability and a feature of the hood is the perforated cylinders that are installed to prevent the entrance of rags and other large particles into the collector lines.—*Morris Litman, Springfield, Mass.*

• 36—Rust Preventative

Aqua-Clear, a rust preventative that is added to water, is the latest product of Sudbury Laboratory. This compound will stand a temperature of 2000° F without breaking down thus presenting great stability for its use in preventing rust. As an example of its use it can be put in the evaporating pan of the humidifier of a warm air furnace when the furnace is new and it will remain in the pan, preventing rust, while thousands of gallons of water are being evaporated.—*Sudbury Laboratory, South Sudbury, Mass.*

37—Pillow Blocks

A line of pillow blocks featuring bronze bearings and aluminum housings has recently been introduced. The bearing is fitted with a ground adapter sleeve so that one pillow block can be used for a number of different shaft diameters. The bearing itself is a spherical, self-aligning type. Sizes in this line range from 5/8" to 3" shaft diameters.—*Anti-Friction Bearings Co., 2020 S. Figueroa St., Los Angeles 7, Calif.*

38—Window Fan

Lau has introduced a new lightweight 18" window fan designed to pull fresh air into a room or exhaust stale air. Considered an addition to the line of "Niteair" fans already on the market the new fan is equipped with specially designed blades, has a three-speed motor and the base bracket is rubber mounted. Capacity of the fan is such that it can be used in home, shop or office.—*Lau Blower Co., 2005 Home Ave., Dayton 7, O.*

39—Arc Welder

A transformer arc welder, designed for use on single-phase power lines of limited capacity, of a size suited to the small repair shop or use on a farm has been introduced by Westinghouse. It is available in three output ratings: 130, 160 and 180 amperes, and comes complete with line breaker and all necessary controls and accessories.

The welders have 20 steps of adjustment of amperage and provide two striking voltages: 65 volts for small electrodes on the lower half of the range and 50 volts for larger electrodes on the upper half.

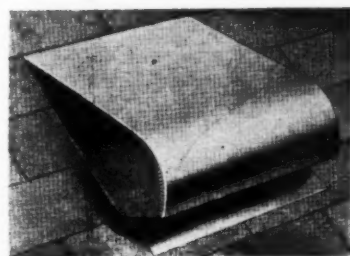
These units meet all requirements of the N.E.M.A., R.E.A. and Underwriters Laboratories, Inc.—*Westinghouse Electric Corp., Pittsburgh 30, Pa.*

△ 40—Welding Fixture

An adaptation of the automatic process of shielded metallic arc welding to mounting on a new type fixture is the latest development in the field. The automatic, traveling head is mounted on a beam that has a vertical travel of 8' and can cover a radius of 20'.

Purpose of this setup is to make it possible to proceed from one job to the next with facility that is not found in the single plane welder. By means of the vertical and horizontal adjustment that is inherent in this machine setup time is at a minimum.—*Mark Gouran, 7426 Devon St., Mt. Airy, Philadelphia 19, Pa.*

41—Attic Ventilator



A new item in the Swartwout line is an attic ventilator that is designed for hip or four-sided roofs. It is all steel and shaped with a curve that makes it adaptable to any roof pitch. Lower part of the opening has a baffle to exclude the elements and the 36 sq. in. of free area is protected by an insect screen. Integral flashing permits weather tight installation.—*The Swartwout Co., 18615 Euclid Ave., Cleveland 12, O.*

42—Toggle-action Pliers

Locking pliers that are actually portable vises are a development for the sheet metal worker by Knu-Vise. These tools function as regular pliers but have a toggle action which builds up pressure on the work and once applied they will remain in locked position with no necessity of hand-hold.



The spindle on the pliers has a screw-driver slot for adjustment of pressure. Material used in the pliers is forged steel, cadmium-plated. Rubber caps for the contact points are available and are recommended where there is danger of damage to materials held by the pliers.—*Knu-Vise, Inc., 2200 Eighth St., Detroit 16, Mich.*

Equipment Development

For your convenience in obtaining information regarding these items, use the coupon on Page 126

43—Timer

A time switch that was originally developed for automatic control of ventilating fans is now being offered by Holcomb and Hoke for use on electric fixtures and appliances. It is designed to operate on a 24-hour cycle and can be set for repeating or non-repeating operation.



Setting of the switch is a very simple operation and the current requirement is 115-volt, 60 cycle.

Full information on specifications and applications is available. —Holcomb & Hoke Mfg. Co., 1545 Van Buren, Indianapolis 7, Ind.

44—New Furnace

A gas fired winter air conditioner sized to meet the requirements of the modern day small home is now being produced by Certified Furnace.

A burner that is specially designed for efficiency of operation and service without interruption is used in the unit. The combustion chamber and heat saver are welded into one solid piece with the heat saver being used to consume the heat from all escaping gases and also to pre-heat the return cold air. Rated output of the unit is 80,000 Btu/hour.

The same burner being used in the furnace is also made as a conversion burner and both furnace and conversion burner come completely equipped with all necessary controls. —Certified Furnace Co., 1000 Berry Ave., St. Paul 4, Minn.

45—Venetian Blind

The modern way to keep the rays of Old Sol out of your home in the summer is thru the use of a new exterior venetian blind that can be tilted and folded by an actuator on the inside of the room. The blind is made with stainless steel or aluminum louvres using fittings of steel or brass.

Manufacturing rights are available to this item and the inventor will send a working drawing for \$20.—E. R. Carroll, 3203½ Lemon Ave., Dallas, Texas.

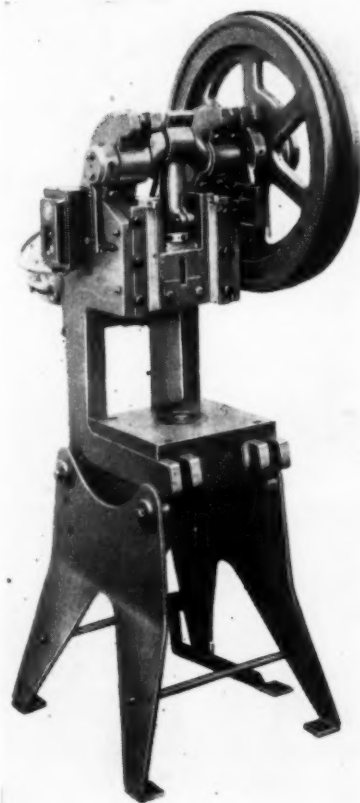
46—Floor Furnace

A new line of floor furnaces has been placed on the market by the Holly company and the name "Stubby" has been selected for the new product. The furnace measures only 25" from finished floor to the bottom of the burner pan and it can be installed from above with no need for a pit or excavation.

Feature of the furnace is a water-tight, dirt-proof burner pan which contains all the controls and is attached to the bottom of the furnace by two wing nuts.—Holly Manufacturing Co., 875 S. Arroyo Parkway, Pasadena, Calif.



47—Punch Press



A new all-steel 20-ton punch press has been developed by Highland that has a rather unusual feature in these days—it is available for two weeks delivery.

A special non-repeat clutch is used for safety purposes and a good shut height adds to its versatility in forming jobs. The crank and some other wearing parts are of Chrome-Molybdenum and the frame is of steel so all these features should contribute to long life for the press. Complete specifications are available.—Highland Engineering Co., 1742 Berkeley St., Santa Monica, Calif.

48—Oil Burner

A pressure oil burner called the "PowRmatic" is now being marketed by Kres-Kno. Principal feature of the new burner is its accurate flame adjustment made possible thru a device known as the "Velocitrol." Purpose of this device is to adjust the air and oil mixture to a point of balance that will most nearly suit the individual combustion chamber. The new burner is available in two sizes with oil-burning capacities from 1 to 6 gallons per hour.—Kres-Kno Oil Burner Mfg. Co., 56 W. 24th St., New York 10, N. Y.



PREMIER "SL" series Steel Furnace below. Made of heavy steel plate with all seams riveted and welded permanently leak-proof. Fire brick lined. Roller bearing grates.



PREMIER "G" series Cast Iron Furnace above. All parts assembled and prefitted before shipping. Extra large one-piece radiator. Ten-year guarantee.

Now PREMIER Offers IMMEDIATE SHIPMENT On Cast Iron and Steel Furnaces...

Yes, PREMIER is ready to fill the furnace dealer's Spring demands for gravity furnaces. A lot of hard work has been done to build up a stock of these popular PREMIER models and now we are in a position to ship your orders at once!

Potentially heavy demands in the coming weeks, however, may again deplete our stocks. Since orders must be filled in turn as received, we'd suggest that you cover your requirements as early as possible.

PREMIER FURNACE Co., DOWAGIAC, MICHIGAN



Oil-Fired
Air Conditioners



Oil
Burners



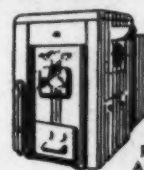
Humidifiers



Automatic
Controls

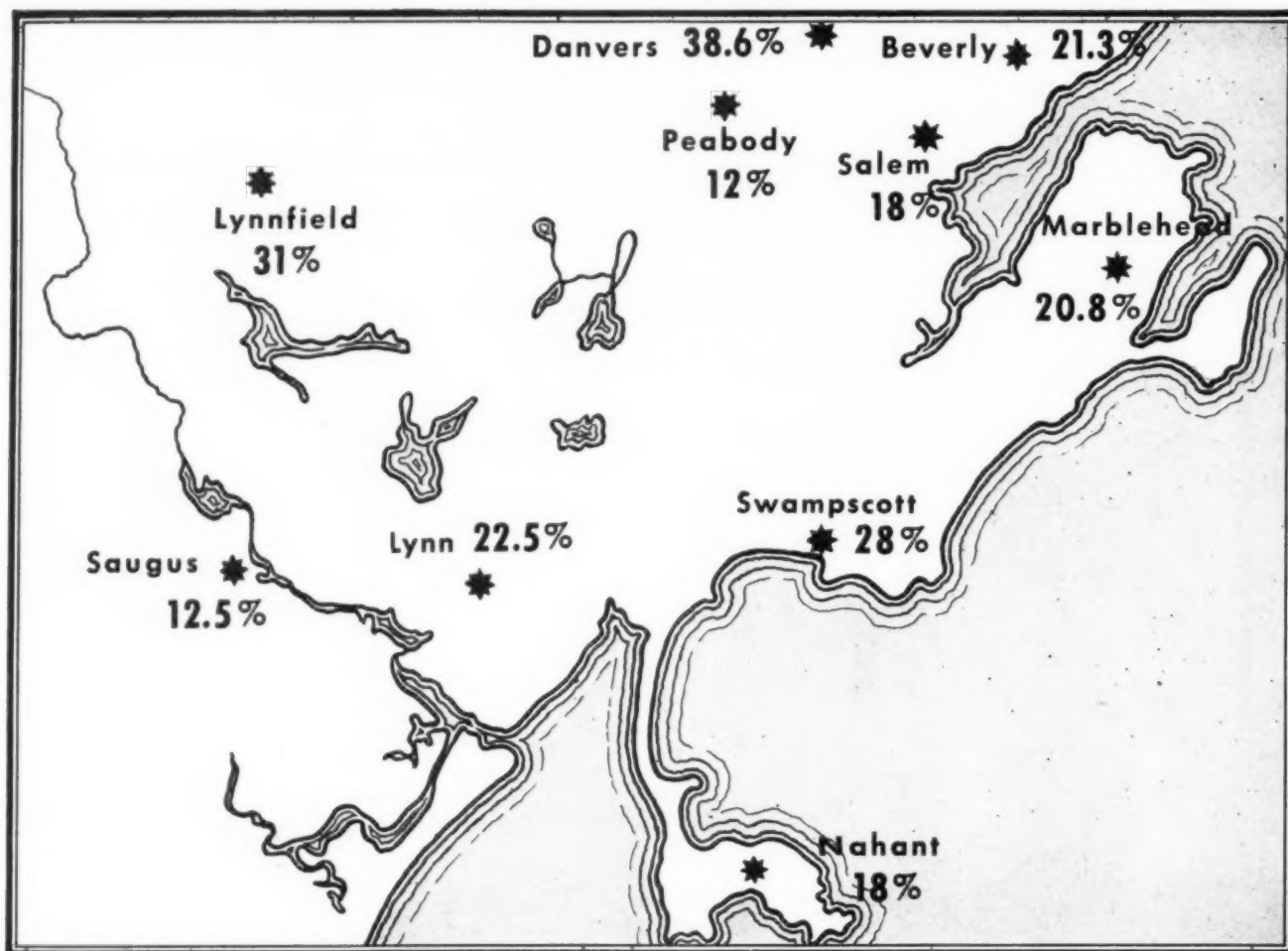


Add-On
Blowers



Forced
Air Units

LET'S LOOK AT LOCAL LEADERSHIP



Despite the fact that 85 other makes are represented in the Lynn territory, 19.6% of all oil burners sold in that territory since 1934

have been Timken Silent Automatics . . . nearly one out of every five! In one community the figure is 38.6%.

NATIONAL leadership? Yes! Timken Silent Automatic is 'way in front.

But more important is Timken's *local* leadership which, to an oil heating dealer, is the only leadership that counts.

Take a look at the Lynn (Mass.) territory, bailiwick of Rollie Booma and Bill Breed, Timken dealers since 1934. Here's a perfect example of what dealer-manufacturer teamwork can accomplish.

This record has been set, not by sleight-of-hand, but entirely by selling a quality product in a quality manner . . . to a buying public that is perhaps the most critical to be found anywhere in the country.

Nor is it an exceptional record. Scores of Timken dealers can point to their one-out-of-four, one-out-of-three and one-out-of-two ratios against odds as great if not greater.

There's no secret to sales success. It's simply a matter of selling the right product the right way . . .

a product that performs so well for its owners that others ask for and demand the *same* product.

This is the basic reason why the Timken Dealership Franchise is the most highly prized in the oil heating industry.

TIMKEN *Silent Automatic* **OIL HEAT**

TIMKEN SILENT AUTOMATIC DIVISION
The Timken-Detroit Axle Company
JACKSON, MICHIGAN



TESTED



....every single one of them....

Too often float valves are simply assembled and shipped. As they say in the business, "The manufacturer doesn't even get 'em wet!" But that is emphatically not true of the McDonnell float valve for humidifier pans. Every single one is given an exhaustive test as illustrated here. Its feeding action is tested; its ability to close tight against water pressure up to 150 lbs. is tested.

Important though it is, this thorough, individual testing is simply the final step in turning out a valve that marks the difference between just a float valve and a real water level control. In the McDonnell Humidifier Valve you have a valve designed to cope with the heat, scale, mud and silt found in humidifier pans. The McDonnell "snap action" does the trick. When the float drops $\frac{1}{4}$ inch, a cam mechanism snaps the valve wide open. This flushes the valve and orifice clean. Contrast this with the sluggish, dribbling action of the ordinary slow-cracking float valve.

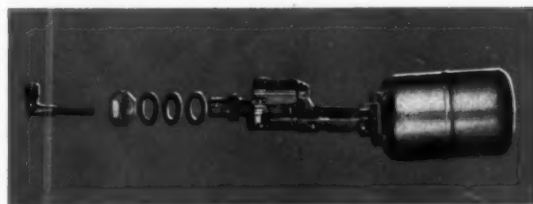
In this control you also have a valve that will seal tight against city pressure up to 150 lbs. No reducing valve is ever needed as with conventional types. The same mechanism that snaps it wide open, closes it with the same snap to a real, water-tight seal.

Although this valve has been better from the start we have never stopped improving it. It now has, as standard equipment, a special monel strainer mounted in a special, machined compression elbow. Experience with thousands of these valves during the war showed the way to further refinements in construction. In this snap-action valve you have a real water level control for any type of furnace, and it is now available on a reasonably prompt delivery schedule.

McDONNELL & MILLER, INC.
1318 Wrigley Bldg., Chicago 11, Ill.

Doing One Thing Well
REG. U. S. PAT. OFF.

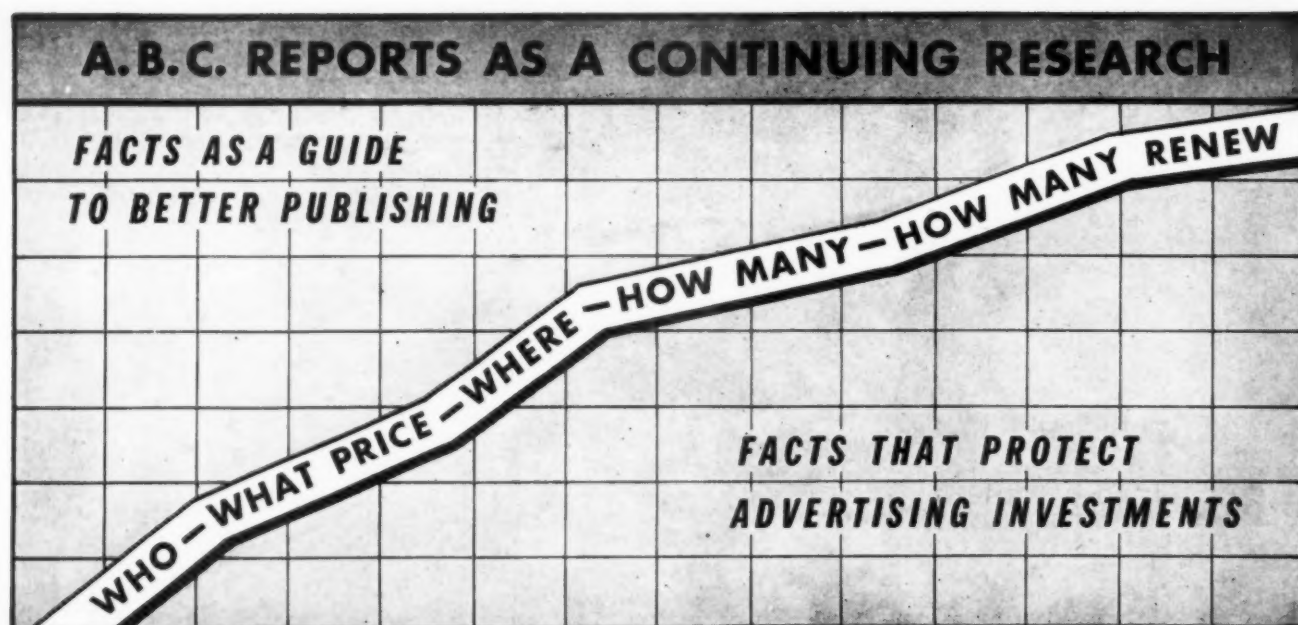
McDONNELL Snap Action FLOAT VALVE



McDONNELL NO. 417 Snap Action Valve for installation in existing pan, or float chamber, or for use by furnace manufacturers as original equipment.



McDONNELL NO. 517 consists of the No. 417 Valve, illustrated above, installed in substantial die-cast float chamber with matching cover, complete with strainer and compression fitting. (Tubing is not included.)



WHAT? A PERPETUAL SURVEY?

Yes, and it covers every subscriber!

GETTING direct, periodic reactions of subscribers and making editorial use of facts so obtained is one of the important ways to build and maintain specific kinds of readership on a solid foundation.

But—

Who are the readers attracted by this publishing policy? What do they pay for the publication? Where are they located? How many? How many renew?

A. B. C. reports tell all that and more. They are gold mines of information for those advertisers who want to buy space intelligently and wisely.

This verified data also gives us, as publishers, a

true picture of reader reaction. For instance, if the number of subscribers in a certain classification has dropped we can find out why and correct the cause. Thus nearly every paragraph in an A. B. C. report is a guide to action and improvement.

Our membership in the Audit Bureau of Circulations does more than provide for advertisers verified facts about our circulation figures and methods.

A. B. C. reports represent a continuing research of readership that helps us in our work of publishing a constantly improving business paper. Both results are essential to the best interests of advertisers.

A. B. C. PROTECTS YOUR ADVERTISING

Paid subscriptions, renewals, evidence of reader interest, are among many facts in A. B. C. reports that are definite guides to effective media selection. When you buy space in A. B. C. publications your advertising is safeguarded by audited circulation. Always ask for A. B. C. reports.

AMERICAN ARTISAN

Member of the Audit Bureau of Circulations



Ask for a copy of our latest A. B. C. report

A. B. C. = AUDIT BUREAU OF CIRCULATIONS = FACTS AS A MEASURE OF CIRCULATION VALUES



**A GREAT FURNACE FOR ANY JOB
REQUIRING UP TO 70,000 B.T.U.**

EVANS *Automatic* **OIL-BURNING GRAVITY FURNACE**

Here's an amazingly compact gravity furnace simply designed, superbly engineered and quality-built by EVANS. It comes complete in only two packages. One man can easily and quickly assemble and hook it up with the duct work. Connect to oil and electricity—and it's ready to go.

Rated 70,000 B.T.U. it performs efficiently at low cost—insuring customer satisfaction. It's a honey to look at, too, with handsome Corsican Red cabinet. Simple pot-type burner with hi-lo flame—completely automatic in operation even to draft regulator assuring all-weather combustion efficiency. Nothing to go wrong. You can practically forget service. Write now for literature.



**SELL EVANS FOR AMERICA'S LOWEST
-COST AUTOMATIC HOT WATER**



There's a growing public demand for lower-cost automatic hot water. EVANS meets that demand squarely with 20, 30 and 45-gallon capacity oil-burning hot water heaters. Cheapest fuel! Clean! Silent! Odorless! Completely automatic! Needs no gas or electric connection! They're white enamel beauties just right for homes, beauty parlors, medical offices, etc. Fully approved. Literature is yours for the asking.



Heating and Appliance Division
EVANS PRODUCTS COMPANY
PLYMOUTH, MICHIGAN





It is no longer necessary for buyers of industrial and commercial heating to take less than the best equipment in order to get prompt shipment.

For open space heating Dravo Counterflo Direct-Fired Heaters are undisputed leaders in quality, efficiency and performance. This is proved through thousands of successful installations.

Now — due to greatly expanded production facilities —
Dravo Heaters are Available Immediately!

If you have a heating problem involving 400,000 Btu or more, look up the Dravo distributor in the "Heater Section" of your classified telephone directory —or write or call Heating Section, Dravo Corporation, 300 Penn Avenue, Pittsburgh 22, Pa.

DRAVO CORPORATION

PITTSBURGH • PHILADELPHIA • CLEVELAND • NEW YORK • DETROIT
 WASHINGTON • WILMINGTON



Bulletin BW-516 free on request.



NOW IS THE TIME TO GET READY FOR CLEAN-UP SALES!

Fuel oil heating systems will soon be turned off for the season. You will begin your seasonal work of cleaning burners and making repairs and adjustments. This is the time to *clean up on added sales* with the General. Where systems are not equipped with filters sell *General Filter* installations. Where filters are in use make filter cartridge replacements. Records prove that *General Filters* are easy to sell . . . they are the hottest item in the fuel oil business! Advertising circulars are ready to help you sell. Contact your jobber immediately or write direct for information and discounts.

THREE MODEL SIZES GUARANTEE SALES WHEREVER FUEL OIL IS USED



Deluxe Model
2A-300
Filter Size
63 cu. in.



Master Model
2A-700
Filter Unit
Surface
72 sq. in.



Standard Model
1A-25
Filter Unit
Surface
31 sq. in.



GENERAL FILTERS
INCORPORATED

GENERAL FUEL OIL FILTER

12890 WESTWOOD AVE.
DETROIT 23, MICHIGAN

CANADIAN FACTORY BRANCH: GENERAL FILTERS CANADA, 1227 ST. CLAIR • TORONTO, ONTARIO

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**"I'M ONLY THE DEALER'S DAUGHTER
—but look what I
found out about heating**



A GIRL'S GOT TO THINK ABOUT HER REPUTATION but Dad has shown me that a smart businessman has *his* to think about too! "Sure I'm smart," said Dad. "I recommend only Fitzgibbons with their 61-year background, and consequently I've got a reputation for fine heating installations." So...



... MY OWN ROOM, 'WAY UPSTAIRS IN OUR HOUSE, is always warm and comfortable because our Fitzgibbons Directaire has plenty of "umph" to push the fresh, warm air up there. Dad explains it in terms of blower capacity but that's kind of technical for me. But...



... I BEGAN TO NOTICE Fitzgibbons Directaire Conditioners in the homes of my friends. Even during the most crowded jam-sessions, the air in these houses was always fresh and clear — no smoke, dust or staleness. Dad says it's because of the fine Fitzgibbons humidifier and filter. But that isn't all...



... BILL, MY "LATEST," IS AN ENGINEER and he says the Fitzgibbons Directaire has "it" in engineering. Correct combustion area, heavy all-steel "WELDSEAL" construction, Contra-Flo air circulation, can work with any good oil or gas burner. No wonder Dad's got a top reputation around town!"

Fitzgibbons Directaire Conditioners are sized from 65,000 to 100,000 B.t.u./Hr. Full data in the bulletin, on request.

Fitzgibbons Boiler Company, Inc.

101 PARK AVENUE, NEW YORK 17, N. Y.

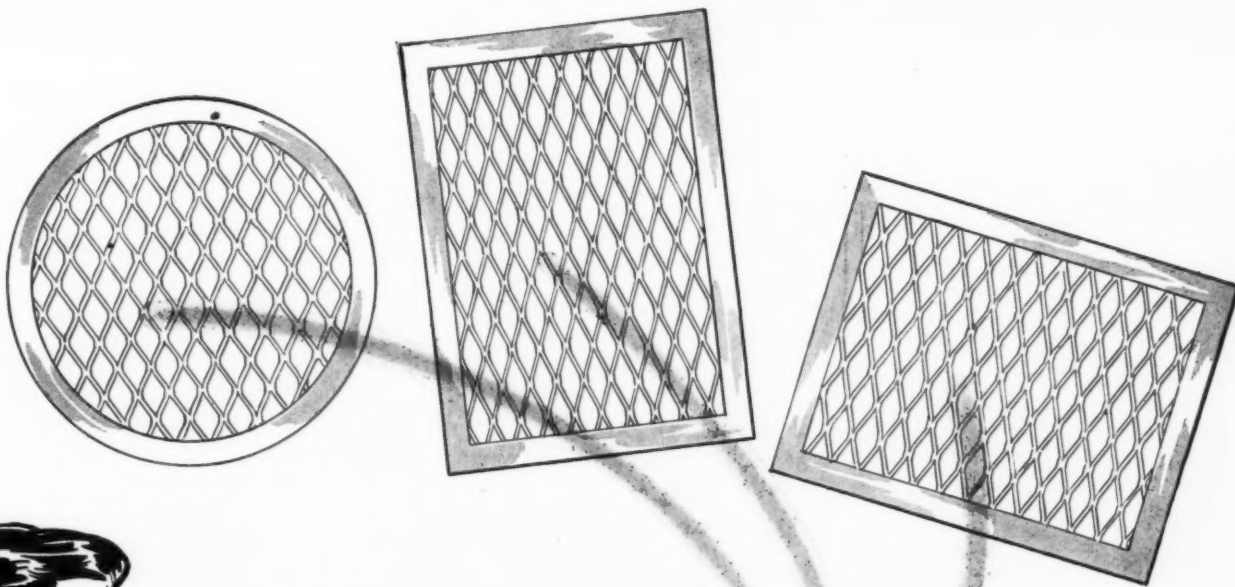
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The warm air conditioner that meets all conditions

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AIR

Sure...WHEELING EXPANDED METAL for Ventilating Grilles.

This modern construction metal lets in light and air . . . and it's so-o-o easy to clean. Strong, too . . . Wheeling Expanded Metal is stronger than sheet metal of the same weight.

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New Literature

For your convenience in obtaining information regarding these items, use the coupon on Page 126

68—"Learn Arc Welding"

A pictorial booklet "Learn Arc Welding" has just been published by the Hobart Trade School. The functions and courses of study pursued at the school are described in this 24 page publication.

The importance of arc welding in modern industry is stressed and an important feature of the course is the fact that it has been approved for GI training and a veteran is eligible for all the schooling benefits needed to see him thru the course.—*Hobart Brothers Co., Hobart Square, Troy, Ohio.*

69—Mor-Sun Sales Manual

An outstanding sales manual for the merchandisers of warm air furnaces giving them valuable sales information in a picturesque, easy-to-assimilate manner is being distributed by Morrison Steel Products.

With no mention of their own product in the columns of the manual Mor-Sun offers the type of basic knowledge that is needed in the engineering and sales of

warm air and winter air conditioning systems. A book such as this is a splendid contribution to the betterment of the industry and every dealer would profit from a study of it.—*Morrison Steel Products, Inc., Buffalo, N. Y.*

70—Ryerson Roto Section


Ryerson has now invaded the field of the Sunday picture section with a colorful, 8-page rotogravure newspaper that shows the end products of the steel that they supply in action.

A decided change from the usual matter-of-fact cataloging of steel and its uses it should be of interest to many steel purchasers. Of course they don't say how soon they will be able to supply all of your needs but at least they are thinking of you.—*Joseph T. Ryerson & Son, Inc., Box 8000-A, Chicago 80, Ill.*

71—Filter Applications

An illustrated booklet discussing various types of industrial dust problems and applications of air filters to those problems has just been compiled. Also included in the booklet are a chart of size and characteristics of air-borne solids and sections dealing with atmospheric dust and filtered air for; industrial air conditioning, industrial ventilation, drying operations, product finishing, cooling electrical equipment, engines and compressors and miscellaneous industrial applications.—*American Air Filter Co., 215 Central Ave., Louisville 8, Ky.*

Leading the Field



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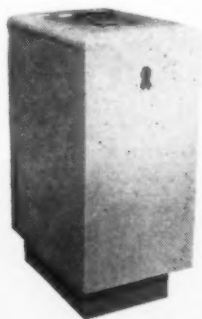
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Floor Furnaces

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Conversion Burners

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Oil Trailer Heaters
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For every type of Residential Construction where ducts are used, demand asbestos protected DUX-SULATION for MAXIMUM HEATING EFFICIENCY and also other IMPORTANT BENEFITS.

Single or multiple residential homes—conventional or prefabricated—frame, brick or stone—in city or suburbs—all homes using DUCTS can materially save on fuel

costs—(saves 75% of the bare duct heat loss—K factor .27 B.T.U.) Uniform temperatures create comfort and extra cleanliness—delivers clean and economical "Conditioned Air" throughout the summer.

DUX-SULATION has low frictional resistance ($F=0.0001322$) because of its smooth surface. Also deadens metallic noises when applied to outside of ducts and will absorb 70% of air borne noises in less than 10 lineal feet of inside lined duct.

You will benefit by getting the full story told in our valuable Bulletin No. 415-A. Write today for this informative bulletin and an actual sample of DUX-SULATION!

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(22nd Floor, Board of Trade Bldg. Phone. Webest 4770.)

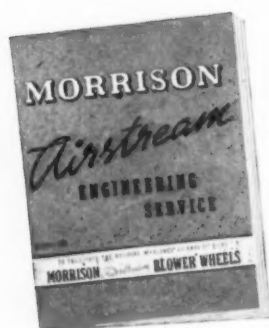
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A flexible insulating blanket $\frac{1}{2}$ " and 1" thick. Comes complete with corner tape and adhesive for cementing on to sheet metal duct work. DUX-SULATION comes 36" wide in a roll containing 100 square feet. Easy to apply and a very efficient insulation against temperature losses, condensation and noise travel. Will not rot, chip or crack.



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who is manufacturing . . .
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Blower Assemblies

These books show you why and how many manufacturers of original equipment are cutting assembly line costs, making better products and increasing profits, in working with Morrison.

Briefly, the Morrison plan includes, (1) furnishing blower wheels, (2) complete engineering service, (3) shop drawings, and (4) templates, so any manufacturer with good shop procedure can profitably manufacture blower assemblies.

The book on blower wheels is full of graphs, charts, drawings and engineering data. The other book tells the story of Morrison cooperation with original equipment manufacturers.



MORRISON PRODUCTS, INC.

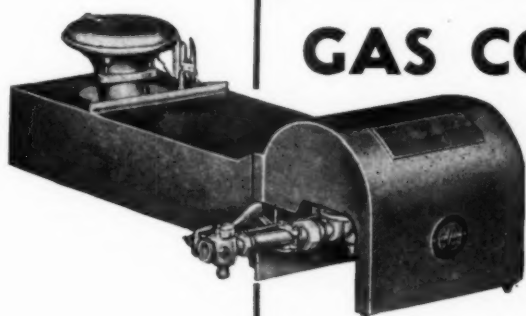
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C L E V E L A N D 1 0 , O H I O



R-G GRAVITY FURNACE

Certified's all steel round gravity type furnaces are now becoming available for immediate shipment. This popular model is built in sizes from 22" to 36". The all steel furnace body is electric arc-welded into one solid piece to assure gas-tight, leak-proof construction. For full details on this R-G model write for Bulletin 1144-C.



GAS CONVERSION BURNER

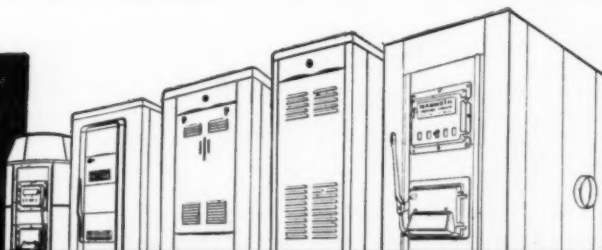
The No. 201 Certified Conversion Gas Burner is adaptable to any gravity or forced air type of central heating plant either warm air, steam or hot water heating system. With a BTU range of 75,000 to 300,000 input this model provides for maximum heating efficiency of any size home or small buildings. Write for literature.

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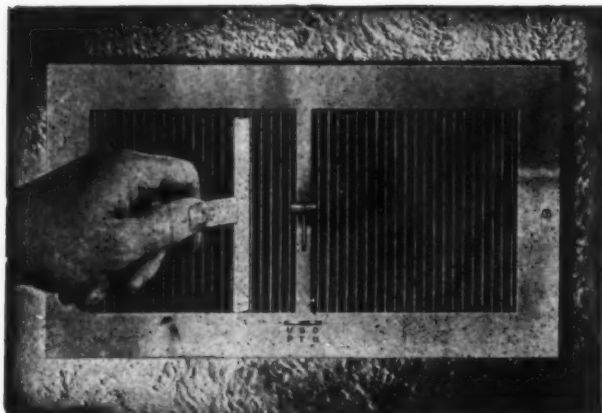
DIVISION OF STAINLESS & STEEL PRODUCTS COMPANY

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Speaking of Air Distribution!

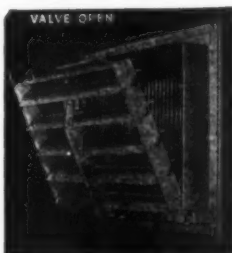


H & C No. 751 Supply Register

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*Nothing approaches the efficiency
of this register with its*

**INCOMPARABLE
TURNING
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We still can't supply them promptly. And perhaps it isn't so important at this time. But when competition again gets serious, remember that this register packs more customer satisfaction than any other in the air conditioning field. And it is no more expensive than other multi-flow registers.



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*World's Largest Manufacturers of
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HOLLAND • MICHIGAN

New Literature

For your convenience in obtaining information regarding these items, use the coupon on page 136.

72—Business Manual

A new manual, one of a series, is offered by the Department of Commerce with the title "Establishing and Operating an Air Conditioning and Refrigeration Business."

The manual makes no pretense of containing a magic formula for success but it does delve into some of the practical aspects of making an entry into the field and might save a prospective entrant money and trouble as well.

Opening with a discussion of the nature of the business it continues into some basic principles of refrigeration and air conditioning then branches off into the various divisions of the general field that might appeal to different individuals.

One of the most important things to do after entry into any business is to keep oneself informed on new developments in that business and the manual also deals with that angle.—Price, 20c—*Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.*

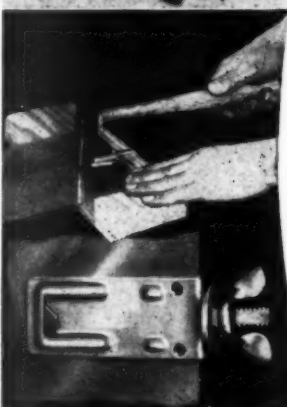
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Most Easily and Quickly
Attachable Sets on the Market

**STURDY • RATTLE-PROOF
NO ANVIL REQUIRED**

**IDENTICAL 5/16"
RETRACTABLE BEARINGS**



Simply slip the bearing over the edge of the damper at the bearing line. Lay on any firm surface and strike one solid hammer blow. The prong pierces the damper and is clinched securely in place by the heavily ribbed underside construction of bearing. Fastening is permanently solid, rattle-proof. Identical bearings with retractable bolt make easier installation of regular or splitter dampers in round or square ducts.

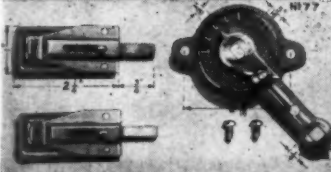
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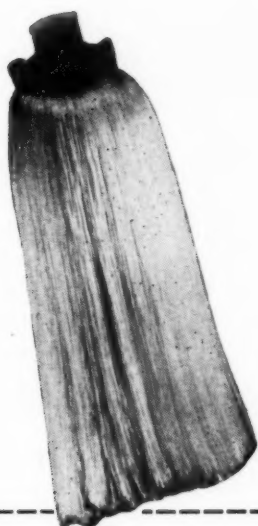
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HART & COOLEY MANUFACTURING CO.
HOLLAND MICHIGAN

WHY MORE ROOFERS PREFER FIBERGLAS MOP YARN



Fiberglas Mop Yarn—the first mop yarn improvement in a generation of roofers—is winning nationwide preference in the entire roofing industry.

Fiberglas mops are easier to use. The individual inorganic fibers do not absorb asphalt or pitch—spread bitumen smoothly and evenly. They may be thawed out quickly after previous use.

And, Fiberglas Mop Yarns *last up to fifteen* times longer than organic yarns that char and burn.

Fiberglas is the trade name for these mop yarns, and for many other products made of light, strong, moisture and heat-resistant, ageless glass in pliable fiber form. For full information, write today to your nearest Fiberglas Distributor or to Owens-Corning Fiberglas Corporation, Dept. 930, Toledo 1, Ohio. Branches in principal cities.

In Canada: Fiberglas Canada Ltd., Toronto 1, Ontario.

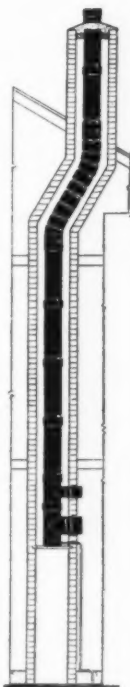
OWENS-CORNING
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**MOP
YARN**



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VITROLINER IS NOW AVAILABLE

VITROLINER is an acid resisting chimney lining which can be installed in existing chimneys, easily and quickly. VITROLINER prevents chimney deterioration caused by acids in the flue gases. VITROLINER will catch the acid condensate and drain it away with no harm to the brickwork.

VITROLINER has been used for the past 18 years and is proven thru a long field record.

VITROLINER chimney lining is heavy gauge steel, double coated inside and outside with acid resisting porcelain fused into the steel at 1575° F.

VITROLINER will correct DEFECTIVE LINING, SMOKE BACK, LEAKY BRICK JOINTS, and POOR DRAFT.

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4-47

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73—The Pre-Fab

In an attempt to clear up some of the welter of confusion that surrounds the prefabricated house, in the present time of housing shortage, the Better Business Bureau has brought out a booklet called "Facts You Should Know About Prefabricated Houses." It clearly defines the prefabricated house and discusses its purchase, location, durability and resale value.—*Better Business Bureau.*

74—Quonset Insulation

A 12-page booklet giving complete instructions for protecting Quonset buildings against heat and cold is now being offered to Quonset dealers. The new booklet describes the same method of installing Kimsul insulation in Quonsets for civilian use that was used by the armed forces throughout the world. It is replete with 24 illustrations and charts.—*Kimberley-Clark Corporation, Kimsul Div., Neenah, Wis.*

75—Data Book

A new edition of the "Rivnut Data Book" has been published which gives complete characteristics of these blind fasteners which serve as blind rivets or nut plates for attachment.

This product was originally developed for use in attaching de-icers to airplanes but has found wide application in segments of industry such as the automotive, refrigeration, electrical equipment and furniture. Rivnuts are produced in aluminum, steel and brass. In addition to specifications test data is also included in the book.—*The B. F. Goodrich Company, Akron, O.*

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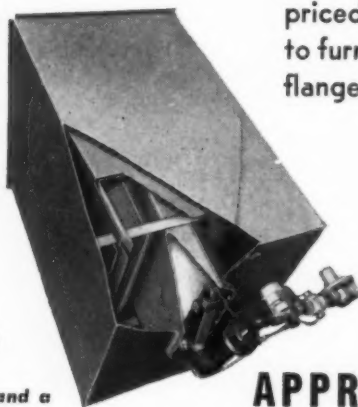
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Customer Is Your
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Hundreds of Dealerships and a
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3 Sizes: 35,000, 45,000, 60,000 BTU
Natural, Manufactured, Butane Gases

Controls: Automatic, Safety Manual, and Manual,
on Natural, Manufactured, or Mixed. Electric, or
Gas, or Manual, on Butane and other L. P. gases.
Butane furnished only with 100% Shut-Off.



EVEN-FLO

GAS FLOOR FURNACE

Quality merchandise rightly priced—not the lowest priced. Shipped with controls assembled and attached to furnace. Heavier steel casing with double suspension flange eliminates need of extra support or bolting to floor—allows removal of grille for cleaning. Special EVEN-FLO burner. Special EVEN-FLO combustion and radiation chambers of 16 ga. steel. Quality workmanship. Every furnace gas tested before shipment. You can sell this furnace.

APPROVED
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1947

BY A. G. A.
Specifications

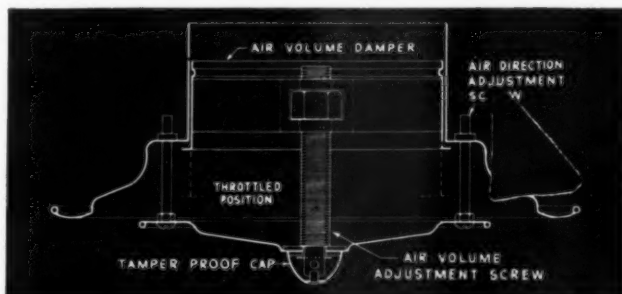
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AIR PRODUCTS, INC.

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How ADJUSTABLE air diffusers increase the efficiency of supply air distribution

Kno-Draft Adjustable Diffusers offer all the advantages of draftless air diffusion plus fast system balancing and air pattern control



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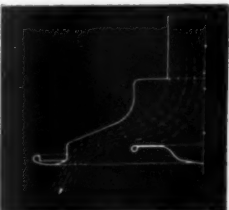
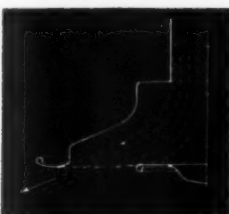
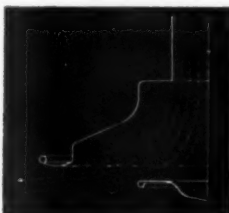
Fast System Balancing: Volume damper regulates the air outlet aperture uniformly without affecting the outlet velocity or diffusion pattern.

Positive Air Pattern Control:

Air direction adjustment affords any angle of air discharge from vertical to horizontal needed to accommodate ceiling heights, individual or seasonal requirements. It can expel chilled air parallel to the ceiling or eject heated air downward to prevent stratification.

Specify Kno-Draft Adjustable Air Diffusers for better mixing control of room and supply air, more uniform temperatures throughout the occupied zone and noiseless, draftless air distribution.

Send for FREE handbook containing sketches, charts, dimension prints and instructive text that simplify the selection and installation of air diffusers. For your copy, please write Dept. J-13, on company letterhead.



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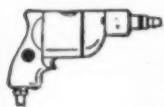
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Here's Your *"Handful of Power"* for Continuous Drilling

A Black & Decker Electric "HOLGUN"* is an easy drill to handle, weighs only three pounds, measures only 6¾" overall. Yet, this compact tool has abundant power for continuous drilling that saves time in all kinds of heating, piping and air conditioning jobs.

Drives twist drills up to ¼" . . . wood augers up to ½" . . . small wire brushes for cleaning and burnishing . . . B & D Hole Saws for cutting clean, round holes up to 1½" diameter in any material a hacksaw will cut. Ideal for working in hard-to-reach places. Requires less muscle to operate. Smooth housings, with famous "Pistol Grip and Trigger Switch," fit naturally into either hand.



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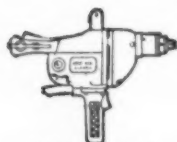
information on HOLGUNS, SCRUGUNS and many other Portable Electric Tools, see your nearby Black & Decker Distributor. Write for free catalog to: The Black & Decker Mfg. Co., 682 Pennsylvania Ave., Towson 4, Maryland.

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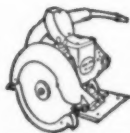
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With the Manufacturers

The Comfort Equipment Corporation, Suite 314, Standard Oil Building, 910 South Michigan Blvd., Chicago, Illinois, has been formed to act as exclusive sales agents for the United States for the vaporizing conversion oil burner and forced air furnace units of Quaker Manufacturing Co. Officers of the new firm are: John M. McClintock, president; James R. Scott, vice president; Michael L. Lavorgna, secretary; George W. Graham, treasurer.

James R. Scott is general manager and Michael L. Lavorgna is general sales manager. Both men are well known in the heating industry.



J. R. Scott

M. L. Lavorgna

Mr. Scott for the last seven years, has been assistant to the president of L. J. Mueller Furnace Company, Milwaukee, Wisconsin. Since his graduation from the University of Illinois, he has been active in and identified with the heating field, being associated with American Foundry & Furnace Company, and Surface Combustion Company prior to his connection with Mueller. He was Chairman of the Publicity and Merchandising Committee of the National Warm Air Heating and Air Conditioning Association during the development and launching of the Association's program for the promotion of Indoor Comfort. He served on the board of directors, representing the warm air industry, of the Indoor Climate Institute.

Mr. Lavorgna was District Sales Manager of L. J. Mueller Furnace Company for the past ten and one-half years. A graduate of the University of Maine, he has been with Allis-Chalmers Mfg. Co., and May Oil Burner Co. in previous years. He is a member of the American Society of Heating and Ventilating Engineers and holds a professional engineer's license for the State of Wisconsin.

Comfort Equipment Corporation plans to incorporate in their national selling activities a complete line of the equipment needed to execute all phases of Indoor Comfort.

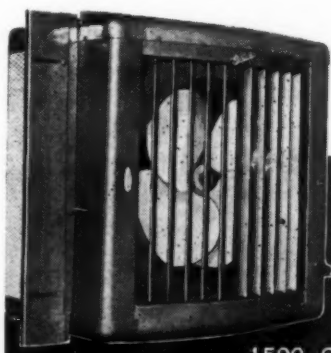
Duo-Therm Division, Motor Wheel Corporation held a two-day meeting of its district managers at Lansing in January for the purpose of outlining to them the company's plans for the year of 1947.

M. F. Cotes, newly-appointed executive vice-president of Motor Wheel, discussed the production picture for the coming year while Karl Egeler, advertising manager, revealed advertising and promotion plans and A. R. Frantz, service manager, spoke of the plans for service and dealer training that are in process.

THE NEW IMPROVED **SNO-BREZE**

EVAPORATIVE COOLER HAS CUSTOMER APPEAL!

Handsome as a piece of modern furniture. Note the sliding metal panels that instantly "fill in" the space between cooler and the sides of window. Adjustable...fits any window from 24" to 34½" wide. Eliminates necessity of blocking out entire window with unsightly fill-in material. Easy to install: requires no outside supports or braces. Power and water switches controlled from inside of room.



1500 CFM

Palmer
Manufacturing Corp.
Phoenix, Arizona

I LIKE THE LOOKS OF
THIS WINDOW COOLER!



IMMEDIATE
DELIVERIES
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WRITE FOR
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TRIANGLE SHOCK ABSORBING PILLOW BLOCK

Designed by Triangle engineers for fans, blowers and other devices requiring silent operation, perfect alignment and self-lubrication.



Preloaded oil-proof cushion built into the bearing. Ball-and-socket design. Write for samples and complete information.

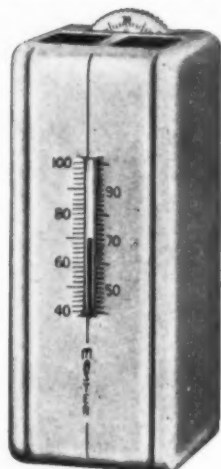
TRIANGLE MANUFACTURING CO.

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MASTER TEMPERATURE CONTROLS

Earn their Reputation



**A-23 Plain
Thermostat**

as instruments by rendering precision-performance—every one!

Over a quarter century of knowing how and doing well has raised the name "MASTER" to a high position in the industry—a standard of long life, comfort and economy for your customers — friends and future sales for you.

The policy of taking more pains than seems necessary in the manufacture of each individual part and inspection and test of each unit, pays in customer satisfaction . . . For this reason "Master" Controls are specified as replacements, and in more and more new construction.



**D-22A
Regulator
Switch**



B-22 Motor

The B-22 Master Control Motor is silent — powerful — low in current consumption.

They are available now for your installations.

**Specify and install "Master".
It is more than a name. It is
a guarantee.**

WHITE MANUFACTURING COMPANY
2368 University Avenue • St. Paul, Minnesota

With the Manufacturers

Gilcor Products Corporation was recently organized at Dowagiac, Michigan with J. L. (Jack) Gillen as president and general manager. Mr. Gillen, former manager of the J. L. Gillen Co., is well known in the water heater and automatic furnace field, having been active in it for fifteen years.

The new company's production will include oil and electric water heaters and automatic furnaces. They are now in limited production and expect to be in full production by early summer.



J. L. Gillen

Two training schools, with the most modern of equipment, one offering courses in air conditioning and one covering commercial refrigeration, have been inaugurated by the General Electric Company's Air Conditioning Department in Bloomfield, New Jersey. These three week courses have been established to bring engineers of the company's distributors up-to-date on advanced refrigeration and air conditioning techniques.

Emil Oeffinger became sales manager of Grant Totten Company of Canton, Ohio on April 15th. He came to Totten from the Air Flow Heating Company where he had been manager and prior to that Mr. Oeffinger had spent twenty years with the East Ohio Gas Company as manager of their heating and engineering department in Canton.

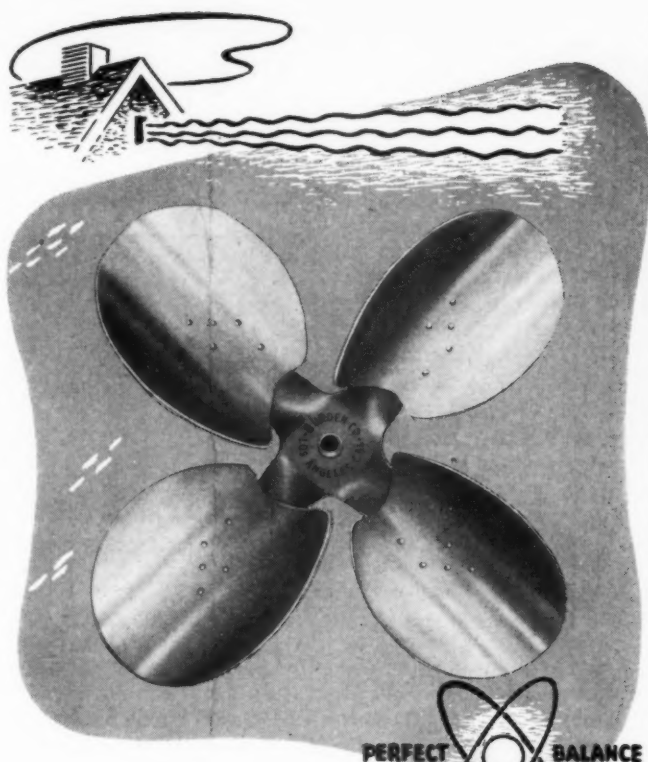


E. Oeffinger

Consolidated Industries, Inc., Lafayette, Indiana, has appointed W. W. Timmis general sales manager of the company. Mr. Timmis had twenty years of experience in the heating and air conditioning field prior to his wartime service with the WPB and later in the Navy.

L. J. Mueller Furnace Company, Milwaukee, Wis., has reappointed Paul F. Mausz to the position of plant superintendent. Mr. Mausz left the organization in 1944 and on his return replaced Frank H. Schryer who resigned because of ill health.

Mueller has also appointed Comfort Products of Philadelphia, Pa., as exclusive distributors of their products in Delaware, eastern Pennsylvania and southern New Jersey.



BURDEN

ATTIC FAN BLADES

THIS NEW blade by Burden offers manufacturers and users of attic fans the utmost in efficient performance.

Perfectly balanced by the exclusive Burden dynamic balancer, the fan is unusually quiet in performance. Its full air volume affords greater cooling capacity. Built of sturdy polished aluminum with steel spiders, Burden Attic Fan Blades give many years of trouble-free service. Light in weight, they are easier to handle.

Available now in 36, 42 and 48 inch diameters.
Other sizes to be announced soon. Write or wire.

• Aluminum Full Pressure
Blades—8 thru 24"...

• Free Air Blades of Aluminum
or Steel—5½ thru 10"...

• Semi-Pressure Aluminum Propellers—8 thru 30".

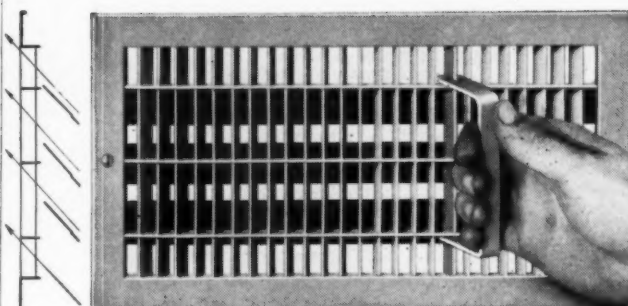


1000 N. ORANGE DRIVE, LOS ANGELES 38, CALIFORNIA

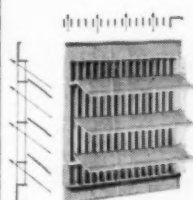
Canadian Representative: SILVER BROTHERS CO.
7-11 Mary Street Hamilton, Ontario

INDEPENDENT

"Fabrikated" WALL GRILLES WITH DEFLECTING VANES



Style 321-A grille
with deflecting vanes



Rear view showing
adjustable deflect-
ing vanes



ACCURATE and positive compound deflection of air flows can be readily secured with these "Fabrikated" grilles. Directional adjustments may be made when grilles are installed; or grille bars and vanes may be adjusted after installation to meet unforeseen or changed requirements.

Each grille bar and each deflecting vane is adjusted *individually* with a special two-pronged tool included with each shipment. Locking of grille bars and vanes is not required because they are held firmly in place—no vibration—no rattle. Write for complete details.



Always Leading—Always Progressing

THE INDEPENDENT REGISTER CO.

3747 E. 93rd STREET • CLEVELAND, OHIO

**To Make Your Work Easier
AND MORE SATISFACTORY**



Easier workability, plus a high degree of adhesion and heat resistance, plus a gas tight and smokeless seal to both sides of the joint, plus enough "give" to take care of all normal expansion and contraction—these are the things you want to make your furnace installation and repair work easier and more satisfactory. Tharco Asbestos Furnace Cement gives you all these features—and many more!

THARCO
*Will not shrink,
check or powder!*

THARCO
*For easier
application!*



With the Manufacturers

C. L. Hewitt, Jr., has become general sales manager of the L. J. Mueller Furnace Company of Milwaukee. This appointment marks a return to Mueller for Mr. Hewitt after an interval of five years in which he saw service as a colonel in the Army Air Forces and spent a year as sales manager of Rheem Manufacturing heating department.

He had previously been eastern sales manager of Mueller for twenty years.



C. L. Hewitt, Jr.

M. C. Kincaide is now Chief Engineer of the Heating Division of Gar Wood Industries, having accepted that position upon his separation from the Army. Mr. Kincaide served 54 months in the Ordnance Department and his work at Gar Wood marks a return to the heating and ventilating field after an absence of nearly seven years.

J. G. Bauer, president Bauer-Ward Sheet Metal Works of Milwaukee died suddenly April 2—aged 62. Mr. Bauer was a member of the local and state sheet metal contractors associations. He had been in business 23 years, and is survived by a son and daughter. He was a member of the board of directors of the Milwaukee Sheet Metal Contractors' Association, Inc.

Morrison Steel Products recently held their annual two-day Sales and Service Meeting for their representatives from throughout the nation. Purpose of the meeting was to keep the men informed on the progress of Morrison's over-all plan to meet the demands that have been made on heating manufacturers by the exigencies of the housing shortage.

H. B. Hastings, Jr., has been appointed eastern representative of the Industrial Division, Webster Electric Company, Racine, Wis.

From headquarters in New York he will provide sales and engineering service to oil burner manufacturers on the Webster line of fuel units and ignition transformers and to furnace manufacturers on the Thermo-drive variable speed blower control.

Maid-O'-Mist, Inc., 3217 N. Pulaski Road, Chicago, has appointed Chester and Price, 222 Bannatyne Ave., Winnipeg, Manitoba, Canada, to handle its full line of automatic humidifiers, water line float controls and other heating specialties in the provinces of Manitoba, Saskatchewan and Alberta, inclusive of Port Arthur and Fort William in Western Ontario.

**Over a third of a Century
FAITHFUL PERFORMANCE**

KRESKY offers future profits to DEALERS

A pioneer among oil burners Kresky finds such an unprecedented demand today that we are forced to limit shipments to old established dealers. Nevertheless new franchises are being granted now to farsighted dealers who see in Kresky's present oversold condition the promise of future opportunity. ★ The versatile Kresky line is a year round money maker due to its wide applications — heating, cooking and industrial. It includes Conversion Burners, Floor Furnaces, Forced Air Units, Range Burners and Water Heaters. *Write for Kresky Dealer Plan.*



**Oil
BURNERS**



KRESKY MANUFACTURING COMPANY

Pioneers in Oil Burning Equipment Since 1910

PETALUMA, CALIFORNIA

HEATING • COOKING • HOT WATER • INDUSTRIAL

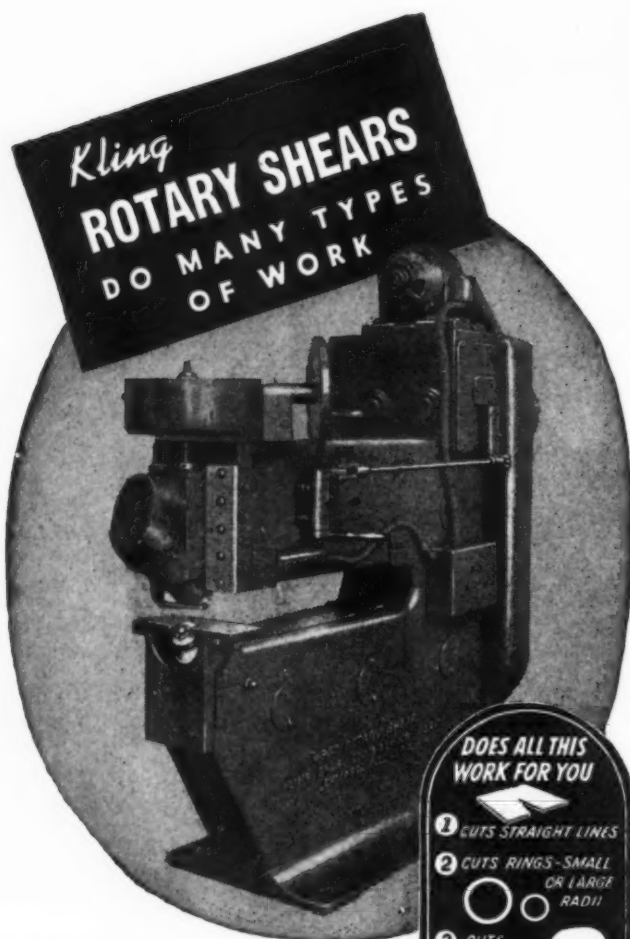


Sheet metal men everywhere are turning out accurate work quickly and easily with Niagara machines and tools for shearing, blanking and forming sheet metal.

NIAGARA

**MACHINE & TOOL WORKS
BUFFALO 11, N. Y.**

District Offices:
Detroit, Cleveland, New York



Yes, and With Hairline Precision

Rapid operation . . . Hairline Accuracy . . . the use of Kling Rotary Shears marks the latest development in cutting mild steel, and sheet metal, up to 1-inch with amazing savings in time, labor, and production costs.

For exacting projects (see illustration at the right), no single unit of metal-working equipment does so many different things so clearly and efficiently as does the Kling Rotary, pictured above.

In metal working plants, automotive, aviation, home appliance, and other industries, where work of this character is being done, — this machine is held in high regard for its versatility and economy of operation.

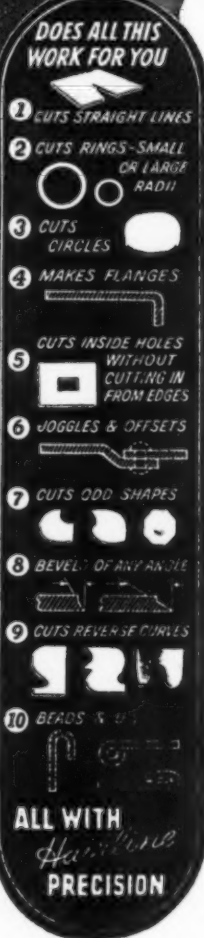
This great usefulness is the result of half-a-hundred years of engineering experience which prospective buyers, with reason and respect, applaud.



Send Today for Bulletin No. 245 which will give you specific facts, and specifications. No obligation involved. Users of heavy equipment of Kling Rotary Shears' class will receive a copy of this Bulletin promptly, on request.

KLING BROS. Engineering Works

1325-AA No. Kostner Ave., Chicago 51, Illinois
EXPORT DEPT. 1111 South Ferry Building, New York 4, N. Y.



NEWS SUMMARY OF THE MONTH

(Continued from Page 64)

Labor Peace Seems Likely

ALTHOUGH cost of living has failed to decline as anticipated, one nationally known labor authority believes a strike wave is quite unlikely because:

- (1) Labor is finding the legal atmosphere unfavorable;
- (2) Labor no longer considers the supreme court as labor's friend;
- (3) National union leaders are afraid to add fuel to congressional flame;
- (4) State legislatures (see AA March, 1947, page 82) are discussing regulatory labor laws;
- (5) Some union leaders are afraid that if strikes get the newspaper headlines again, legislative bodies may be moved to adopt drastic legislation.

Closed Shop Legislation

LAST January Senator McCarthy introduced a bill which he said would eliminate the closed shop issue. This bill would permit an employer to make "any statement of views or argument concerning any labor question whatever, if the statement contains no threat of force or malice."

As originally presented the bill outlawed the closed shop unless two-thirds of employees of a plant voted for the closed shop by secret ballot. The employer would be compelled to accept a closed shop if two-thirds of the employees voted for it. In a closed shop, only union members may be hired under the plan. Under a union shop, non-union workers may be hired but they must join the union before they can work.

This bill has been the cause of lengthy discussions in both houses of Congress, recently a revised version has been revived and Congressional discussion, so Washington reports, is swinging toward further consideration of the basic principles involved in the McCarthy bill.

Tin Still Controlled

THE tin conservation order (M-43) has been amended to eliminate all quota restrictions and permit some relaxation in the use of the metal during the first quarter of 1947, however relaxations have not been permitted to an extent to justify any appreciable increase in its use.

Tin controls expired on March 31, 1947, but President Truman included tin in the list of materials on which he asked Congress to grant a twelve-month extension of war-time powers.

Change
MINUTES
to SECONDS
with

Riverside

Pittsburgh
"DUO-LOCK"
Machine

Locks that used to take several minutes can now be formed in just a few seconds with a Duo-Lock. Forms Pittsburgh Locks, Double Seam Locks, Right Angle Flanges and Drive Cleats, and can be set up for two forming operations at one time. No adjustments are necessary for the different gauges making it possible for an inexperienced operator to work this machine which simply plugs into an ordinary light socket.



RIVERSIDE MACHINERY COMPANY

Shakopee

Minnesota

NOTICE!

WISE FURNACES

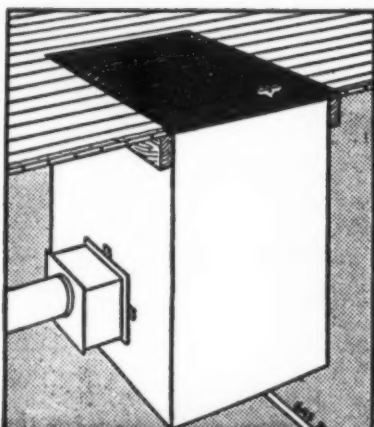
GRAVITY

**COAL
AND
GAS**

FORCED AIR

**NOW AVAILABLE FOR PROMPT DELIVERY
WRITE FOR OUR EXCLUSIVE DEALER PLAN**

THE WISE FURNACE CO. AKRON 8, OHIO



**That Amazing
JOHN ZINK
FLOOR FURNACE**



**"Can't
Be Beat"**

The Floor Furnace That Features

- ★ **EFFICIENCY**
- ★ **QUIETNESS**
- ★ **DURABILITY**
- ★ **ECONOMY**

One large gas port, eliminates burner stoppage. Large full length combustion chamber giving uniform warm air temperature without overheat. Proper design makes possible a light air hood which is easily removed for cleaning the furnace. The gas burner is a pre-mix type, made of high grade cast iron, equipped with a pilot light. Automatic controls are available.

John Zink and his engineers manufacture Gas Burners, Oil Burners, and Combination Oil and Gas Burners for: Domestic Boilers, Heating Boilers, Industrial Boilers and Power Boilers. We are willing and capable of designing and manufacturing special burners for special purposes.

Write for Literature

John Zink Company

4401 South Peoria

TULSA, OKLAHOMA

New York - Salt Lake City - Houston - Los Angeles

Some items in the amendments are: (1) permission to use tinplate of specified weights for domestic kitchen equipment. (2) pure tin pipe is now regarded as pig tin and may be used for the manufacture of food and beverage dispensing units, including soda fountains. (3) tin oxide may now be used in the production of earthenware plumbing fixtures. (4) the percentage of tin permitted for use in solder is increased. (5) Schedule II: For soldering electrical equipment and other specified uses, the permitted tin content in solder has been raised to 50 per cent from 40 per cent; for other hand soldering operations to 40 per cent from 35 per cent and for any other soldering operations, to 35 per cent from 30 per cent.

Our National Resources

A QUESTION which has come out of the war period has to do with the rate at which this country is consuming its natural resources. According to statistics, our country has the largest known coal reserve of any country in the world; our iron ore is plentiful, but the richest reserves are giving out and remaining ore will require more expensive treatment for production. Balancing this decreasing supply of good iron ore is the fact that there are approximately one-half dozen metals which have increased greatly in use during the war and which appear now to have practically unlimited resources.

At the rate at which copper was consumed during the war, the United States would have used all of its copper resources in a period of ten years. Lead-zinc supplies of commercial value are even scarcer than copper. No one seems certain of our future fuel oil supply because we have been talking about oil shortages for twenty years, but it is a fact that more and more oil is being used every year and we may be approaching the end of our unlimited resources.

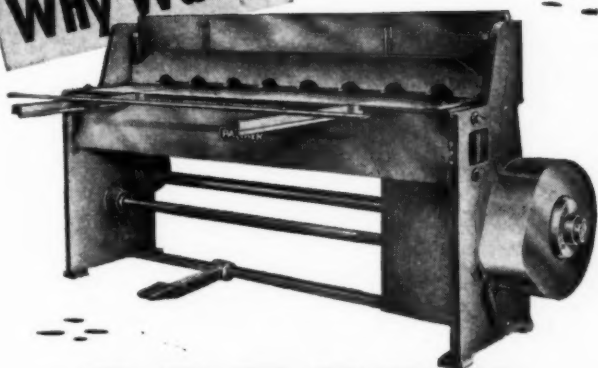
Container Outlook

MANY manufacturers experienced considerable difficulty in 1946 in obtaining suitable containers in which to ship their products. Washington authorities now see some relief for container users in 1947, but supply depends somewhat upon the type of container used. Paper and fibre boxes, drums and cans will remain difficult to get until the end of 1947 as manufacturers are not able to obtain paper board. Definite shortages of equipment, plus lack of raw materials and plant capacity are reported by paper board manufacturers.

The lumber supply is expected to improve in 1947, reaching a total of approximately 38,000,000,000 board feet by the end of 1947. Therefore additional packing and shipping lumber should be available by the third quarter of the year. The wooden box industry expects wood containers to increase ten to 20 per cent in production over 1946.

The big problem of metal container manufacturers continues to be a shortage in sheet steel. Even if some

Why Wait?

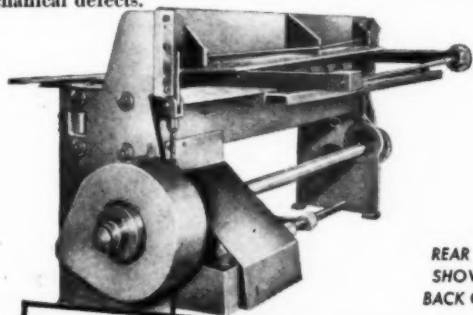


PARKER

POWER SQUARING SHEARS

...are now ready for delivery!

PARKER 14-gauge, 72" Power Squaring Shears are rolling off the line and can be delivered, ready for installation, within 30 days. Parker Shears are of all-steel welded construction, component parts being made of extra heavy steel plates formed into box type rigid members of maximum strength and minimum deflection. Steel parts are normalized after welding, relieving all stresses. The stiffness or rigidity of steel is twice that of cast iron and the breaking point is three times that of cast iron. Only 47" high, Parker Shears have a low center of gravity for smooth, vibrationless power operation. They will cut drawn or folded parts within 1 1/2" of the shoulder, thus deep-drawn objects (sinks, basins, cowlings, etc.) may be trimmed closer. Four-way, high carbon tool steel blades last longer and reduce grinding time. Extra long gibways insure long blade life and straight-line shearing. Parker Shears are sold with a warranty against material and mechanical defects.



REAR VIEW
SHOWING
BACK GAUGE

SPECIFICATIONS

Capacity gauge	14	Front gauge range	38"
Cutting length (Max.)	73"	Strokes per min.	85
Blade length	75"	Motor (3 phase) HP	2
Upper blade slope	3/4"	Height	47"
Back gauge range	18"	Weight (Approx. lbs.)	2750

Write or wire for complete information.
Territories for distributors available on request.

PARKER
MANUFACTURING COMPANY
2200 Colorado Avenue
Santa Monica 4, California

Offer your buyers this perfect air cooler!



Marsalis

- Controlled AIR Diffusion
- ADVANCED ENGINEERING
- CONTROLLED HUMIDITY
- SMART DECORATOR STYLING

Check These Advantages!

Easy to install

Average installation time—45 minutes, no tin snips needed. Flexible, plastic side panels assure proper fit with no leakage of air, aid in quiet operation.

Smart Appearance

The Marsalis Cooler is styled to harmonize with any interior. Finished in two beautiful shades of brown, with plastic front and side panels. Meets the discriminating home-owner's demand for an attractive home-cooling unit.

Specifications

Exclusive Marsalis non-rotating louvers give diffused circulation of air. Zinc-coated "Bonderized" heavy gauge steel used throughout. Two sizes: Model 1647 (approx.) capacity 1600 cubic feet per minute, Model 1847 (approx.) capacity 2200 cubic feet per minute. Both models are furnished with or without water re-circulating pump, as desired. Fully guaranteed. 110 volt, 60 cycle —A. C. current only. Fully protected by patents and patents applied for.

P-R-O-T-E-C-T-E-D *Profits*

Simple installation—No expensive plumbing or wiring. Can be installed in less than an hour by one man working with pliers, screwdriver and household scissors.

Marsalis Cools

**DON'T
DELAY**

31st Year in the design,
manufacture, and installation
of Air-Treating and Air-Handling Equipment.

**WRITE
TODAY**

AMERICAN METAL PRODUCTS COMPANY
P. O. BOX 7037 SYLVANIA STATION FT. WORTH, TEX.

additional steel becomes available, the metal container manufacturers will be competing with other heavy users such as automobiles, refrigerators and the railroads.

AFL Cautions Member Unions

PUBLIC statements of the AFL leadership are emphasizing the Federation's readiness to settle current wage demands without strikes. This attitude is pointed up in the January issue of "Labor's Monthly Survey." Here are a few highlights:

"If employers claim they cannot raise wages as much as we feel is just, and if they prove their claims by submitting financial reports, production and sales records, we can assist in improving production so the higher wage can be paid . . .

"Hasty and irresponsible action by unions or employers could bring about a depression with widespread loss of jobs and incomes for workers . . .

"Consumer buying power must be restored, and this cannot be done by wage increases alone. Price declines will raise everyone's living standard . . .

"Unions have much to gain by calling in the U. S. Conciliators. Most strikes could be prevented if measures for conciliation, mediation and arbitration were exhausted before a strike is called."

Fringe issues are back in the labor news. Union negotiators are asking for fringe concessions such as:

elimination of geographic wage differentials, equalization of pay for women, welfare funds and annual wages.

Welfare Programs

AT least one labor organization (UAW) has demanded of the Chrysler Corporation a cradle-to-the-grave social security program for employees. A similar welfare program is said to be a part of the demand by CIO's steel workers on the U. S. Steel Corp.; United Electrical Workers has announced its plan for 1947 will include insurance and pension clauses. Welfare fund programs by AFL unions have not been widely publicized, but some AFL unions are including welfare funds in their 1947 demands. United Mine Workers district No. 50 has just obtained a number of welfare clauses. A. F. of L.'s musicians union has obtained much the same thing through its "tax" on phonograph recordings.

It would seem that management may now look for pressure from unions to obtain additional medical and hospital protection, welfare benefits, pension funds, additional holidays with pay, etc.

It is reported that at least one million workers now are covered by some form of welfare plan. Some plans are administered solely by the union; some jointly by labor and employer; some jointly by labor, employer and a disinterested third party; and some plans by outside parties. Most of these plans are financed by the employer who contributes from one to three per cent of the total payroll.

DEALERS .

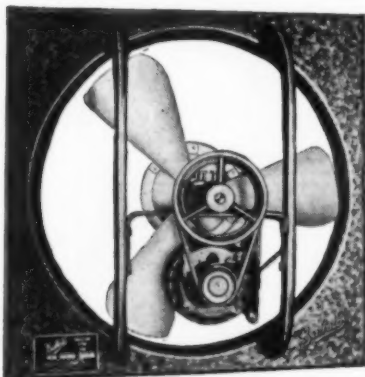
HERE'S A SALES PROGRAM FOR SPRING AND SUMMER PROFITS • Act Now!

AIR-CHAMP

EVAPORATIVE COOLER

GIVES LOW COST COMFORT AND COOLING WHICH PAYS ITS OWN WAY.

- ALL GALVANIZED CABINET
- TURBOSPRAY WATER DISTRIBUTION
- DOUBLE MAT ARRANGEMENT TO ELIMINATE WATER PULL-THROUGH



ALSO, write for information on Blowers, Recirculating Pumps, and Air Supply Grilles.

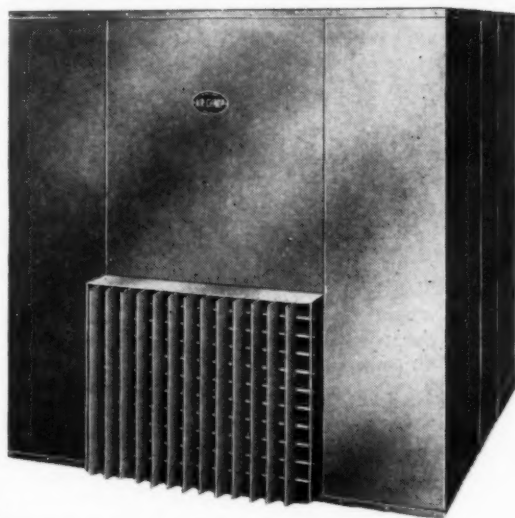
SELLS TO

- STORES
- SHOPS
- BANKS
- CHURCHES
- TAVERNS

ATTIC FANS

COMPLETE WITH MOTORS.

ALL SIZES AVAILABLE TO DEALERS WHO ORDER NOW. QUIET, GUARANTEED ATTIC FANS ASSURE MORE CUSTOMERS AND SUMMER PROFITS.



ALTON MANUFACTURING CO.

Cooling and Ventilating Equipment

1112 ROSS AVENUE • DALLAS 2, TEXAS • PHONE RIVERSIDE 3491

PEXTO...SKILLED OPERATOR...FINE PRODUCTS ...an unbeatable team!

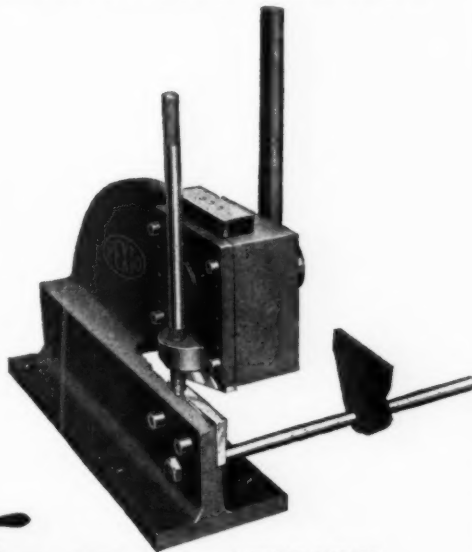


SCROLL
SHEARS



MACHINES
ROTARY

Yes sir... this has been a championship team since the start of the Sheet Metal Working Industry. PEXTO Machines and Tools have set the pace, helped train students to become craftsmen, enabled shopmen to produce better products with less effort, with greater speed and maintained accuracy. You'll find no finer equipment anywhere.



SLITTING SHEARS



FOLDING MACHINES

THE PECK, STOW & WILCOX COMPANY - Since 1785 - SOUTHTON, CONNECTICUT, U. S. A.

TOMORROW IS ALMOST HERE!

The good things of life that we have all been promised so many years are gradually materializing.

Nu-Way industrial designers and engineers are bringing together many advanced ideas. These ideas are gradually developing into realities.

The new Nu-Way line of burners, combining precision workmanship with efficient operation, will be both a pleasure to look at and will have incorporated in them the high standards of Nu-Way performance.

Yes, tomorrow is almost here!

THE **Nu-Way** CORPORATION
QUALITY OIL BURNERS SINCE 1921

SERVING DISTRIBUTORS, FURNACE AND BOILER MANUFACTURERS
ROCK ISLAND, ILLINOIS, U. S. A.

Find out NOW
about
RUDY'S
new 1947
cast iron
OIL-FIRED
air conditioners.

RUDY engineering
has pioneered
for 30 years.
Be safe
with RUDY.

RUDY
FURNACE COMPANY
DOWAGIAC 30, MICHIGAN

Illinois Convention

(Continued from Page 99)

the filter gets too dirty to perform its proper function served to dramatize his arguments.

From a discussion of filters he was led naturally to speak of blowers since the two are almost interdependent in the correct operation of the heating plant. Mr. Reining's chief message in this regard was that it is outmoded to order blowers by inch sizes of wheels. Since manufacturers make several lengths of wheels the diameter is not a governing factor. The most appropriate way to order blowers is by CFM delivered.

H. H. Huth of Link Belt gave a brief talk on stoker servicing and problems and held out the hope to stoker dealers that many of their service difficulties would be solved when the quality of stoker coal was brought back to the level that it occupied before the war. The importance of correct air adjustment was underscored in the course of his talk.

Next on the order of business were association matters such as the report of the resolutions committee and the election of officers. The list of officers is printed elsewhere in this story. All the sessions were distinguished by the presentation of attendance awards which numbered such scarce articles as bundles of galvanized sheets as well as valuable hand sheet metal tools, humidifiers, draft controls, etc.

Kruckman— Washington Letter

(Continued from Page 59)

approximately 5 billion, which has been the figure in Congressional minds for several months. There is another argument, very productive of stage-managed debate, which seeks to determine whether excess tax receipts—the amount collected over the budgetary requirements—should be used to pay off the public debt, or to reduce the tax rate. Another pending argument is in regard to disposition of any funds derived from the sale of surplus property. Most of the senators wish the funds to be applied to debt reduction. The wishes of the President are assumed to be reflected by his Secretary of the Treasury, Snyder, who told Congress any surplus receipts from taxes, or from surplus property disposal should be applied to the reduction of the public debt. This statement is assumed to foreshadow the possible veto of tax-reduction if enacted by Congress as the plan has been permitted to leak out of the House Ways and Means Committee.

This is the proposal to cut taxes for those having a taxable income of \$1,000 or less by 30 per cent. Over 20,000,000 taxpayers would benefit, and the treasury would lose \$386,000,000, bringing the overall tax cut this year to \$3,840,000,000. The 30 per cent cut is interpreted to mean that a single person earning up to \$1,650 would benefit; a married person with a gross income up to \$2,200; and married couple with one child, \$2,750; with two children, \$3,300. Those who have taxable income—meaning after all deductions and exemptions have been subtracted from the gross income—of \$1,395 would benefit by a 20 per cent cut; those who have a taxable income between \$1,000 and \$1,395, would be allowed a flat cut of \$57. Income beyond \$302,000 would be cut only

Announcing

Swartwout's New
Powered Roof Ventilator

The
Ject-O-Valve



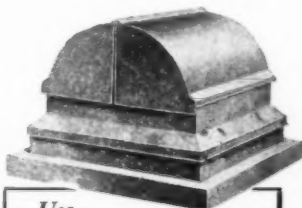
**Powerful...Economical...
Constructed to Stand Long, Hard Use**

For your smoke, fume, dust or heat problems that only *power* elimination will solve . . . this high velocity ventilator has many values for your consideration. . . .

Ject-O-Valve is the "straight-through" type. The powerful blast from its scientifically designed propeller holds top sections open, sweeps aside all weather, forces unwanted elements into the outer atmosphere. Top closes weather tight when motor stops.

Carefully engineered in five sizes . . . and powered by motors and propeller type fans of varying ratings to give you a selection of 14 different capacities. Write for Ject-O-Valve Bulletin 323.

The Swartwout Company
18615 EUCLID AVENUE
CLEVELAND 12, OHIO



Use

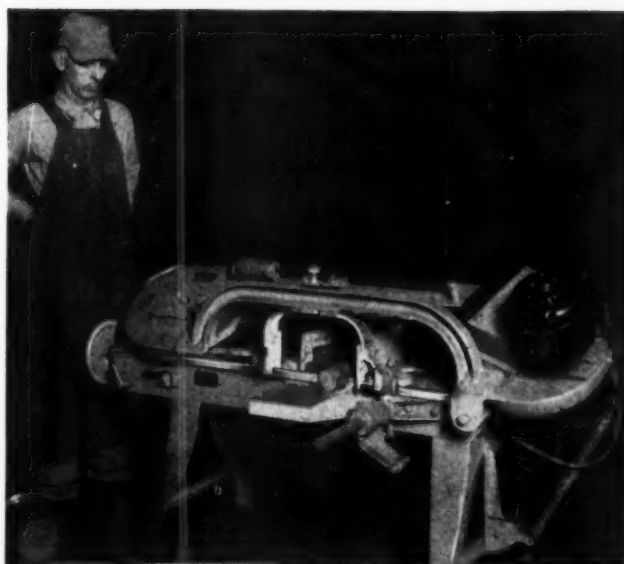
Ject-O-Valve

*over pouring floors,
vats, furnaces,
soaking pits, etc.*

Swartwout
Controlled Air Circulation

EQUIPMENT FOR EFFECTIVE ECONOMICAL
VENTILATION OF INDUSTRIAL BUILDINGS

**HOW TO CUT
BARS • ROUNDS •
SECTIONS • PIPE**



METAL CUTTING BAND SAW

• If you have a variety of metal cutting jobs—bars, rounds, sections, pipe, tubes—it will pay you to investigate the advantages offered by portable, practical Wells saws. Simple in design and rugged in construction, the Wells No. 8 requires no highly skilled operator or special handling. Powerful, quick acting vise reduces set-up time to a minimum. Gravity feed and automatic shut-off makes it practical for one man to operate two or more Wells saws simultaneously. For production work, your Wells can be equipped with the new Wells Wet Cutting System for faster cutting and longer blade life. Ask for the complete story. Literature and quotations on request.

Specifications

CAPACITY: Rectangular 8" x 16"
(Special Guides) 5" x 24"
ROUNDS: 8" Diameter
MOTOR: 1/2 H.P., A.C. or D.C.
SPEEDS: Selective 60, 90, 130 feet per minute
WEIGHT: Approximately 665 pounds



Products by Wells are Practical

**METAL CUTTING
BAND SAWS**

WELLS MANUFACTURING CORPORATION
1818 WILSON AVE., THREE RIVERS, MICHIGAN

10.5 per cent. All persons over 65 would be allowed an extra \$500 personal exemption, bringing the total exemption to \$1,000. It is interesting to learn from the Congressional debate that Government estimates Federal taxes now take from each man and woman who works, directly or indirectly, \$700 per year. Senator Leverett Saltonstall, of Massachusetts, emphasized a fact that is often overlooked, i.e., that the largest part of our Government expenditures is *for past wars*. The President's budget calls for an overall appropriation of \$37,000,000,000. Of this, \$24,000,000,000—almost two-thirds of the gross overall—covered expenditures for the Veterans Administration, and for the Armed Forces,—for past wars and for wars that may occur in the future. There is food for much thought in those facts. Aside from the immediate tragedy of war, its aftermath hangs like a dead weight on generation after generation. We are, for instance, still paying some obligations that stemmed from the war of the original American Revolution. The live debts of the war of 1812, of the Mexican War, and the Civil War, are collectively enormous.

Taxes vs. Income

Senator Taft, in discussing fiscal policies, estimated our Federal, State, and local taxes, the next two years, would gross approximately \$50,000,000,000 annually, which is more than one-third of the national income. He points out every man or woman is working one day in three for the Government; that a single person earning \$1,200 a year, must pay

\$110 in taxes. He remarked several times that the President must rebate to the Government \$40,000 a year out of his annual salary of \$75,000. Taft said: "Those corporation executives who can do so much by brilliant leadership to improve methods and techniques of management and increase the productivity of workers, have to pay more than half their income to Government and have every incentive to quit working at the earliest possible time. There certainly is no incentive to take a risk in new ventures which create employment or do otherwise than to leave money idle in Government or municipal bonds. The whole incentive to work hard is deadened." John W. Hanes, former Under Secretary of the Treasury, during the Roosevelt administration, told the House Ways and Means Committee that the collection in surtaxes on incomes of \$100,000 or more amount only to \$850,000,000, and that the high rates kill "the incentive to work and assume great responsibilities." Roswell Magill, another former Under Secretary of the Treasury under Roosevelt told the Congress the persons who earn more than \$15,000 a year are the people who must make our economy work.

Size of Budget

In discussing the Budget in the Senate, Senator Harry Byrd asserted this Budget for a peacetime year is equal to the total cost of World War One, plus the ordinary Governmental expenditures for 1917, 1918, 1919, and 1920. It is approximately \$10,000,000,000 more than the national defense expenditures

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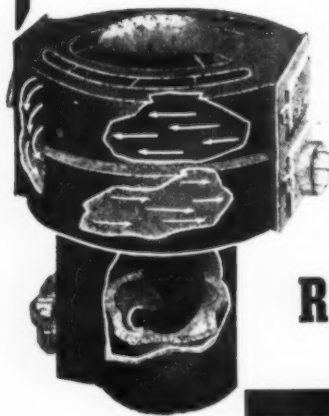
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Ridge, Valley and
Clapboard Wall Conditions
with Standing Seam on Ridge
Below and Flat Seam Above

Detail of Valley
with Standing
Seam Roof



Follansbee Metal Warehouses—Pittsburgh, Pa., Rochester, N. Y., and Fairfield, Conn.

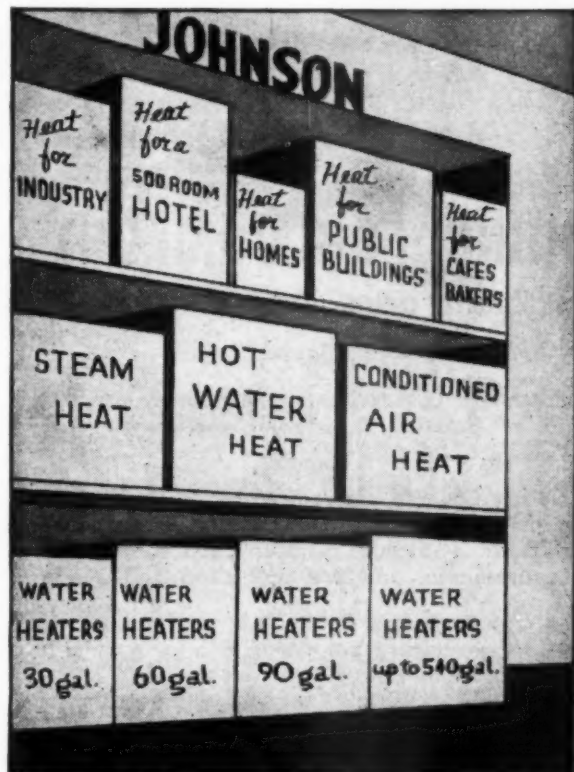
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for World War One, and \$5,000,000,000 more than the aggregate of all Governmental expenditures for the 11 years, 1921 to 1931, inclusive. He said we had been in the red for 17 years, increasing the public debt from \$16,000,000,000 to \$260,000,000,000; and during those 17 years "We have built up at Washington a gigantic bureaucracy, which has attempted, sometimes with ruthless and autocratic control, to administer the affairs of our citizens." Again: "The people think of Government as a third party, when, in fact, we ourselves are the Government. If our democracy is to survive, the people must support the Government and not the Government the people."

On December 12, 1946, there were 1,039 Principal component parts of Federal Government, says Senator Byrd, including departments, main bureaus, emergency and independent agencies with 2,500,000 employees. He showed that in 5 years the 48 states reduced their public indebtedness by \$1,175,000,000 or 32 per cent, and increased balances in their general fund by \$1,188,000,000. The states and localities have been reducing their public debts while the Federal Government has been increasing its debt. The proposed tax exaction is about equal to the total receipts of the Government for 10 years prior to the War. When a republic reaches the point of diminishing returns, occasioned by excessive taxation, then that nation is approaching financial insolvency.

The present practice is for the Congress to bring in 11 separate appropriation bills, submitted 30 days apart. These are usually submitted to vote on the floor between April and June. Senator Byrd holds

an over-all limit for a Budget can not be defined unless all the 11 appropriation bills are integrated in one over-all bill, and considered as one proceeding. He points out the curious fact that the Army and Navy employs 1,117,000 civilian employees, with an armed personnel of 1,600,000. This item alone costs \$3,000,000,000 and is singled out by Byrd as an indefensible extravagance. It cost \$6,960 to maintain a soldier or sailor during the war; the cost in the debated budget is now \$6,790 per man.

Senator Byrd made this very striking and arresting statement:

"If there had been a debt of \$260,000,000,000 when World War II began, our form of democratic government would today be destroyed, because, if this debt had been nearly doubled, there is no way the freedoms of our Republic could have survived under our present form of government. There has never been a single democracy anywhere in the history of the world that has been able to outlive financial insolvency, because democracy means freedom of the people to own and operate their business and conduct their private affairs, and when the obligations of the government became so overwhelming that the people can not by their free initiative pay the cost of government, then democracy must yield to some form of totalitarianism, destructive of the liberties of the people." Senator Byrd said those words two months before the "Stop Russia" program was unfolded. It is since this utterance that many signs of discouragement, even desperation, have appeared among tax payers who can't dig their way out. Byrd, naturally,

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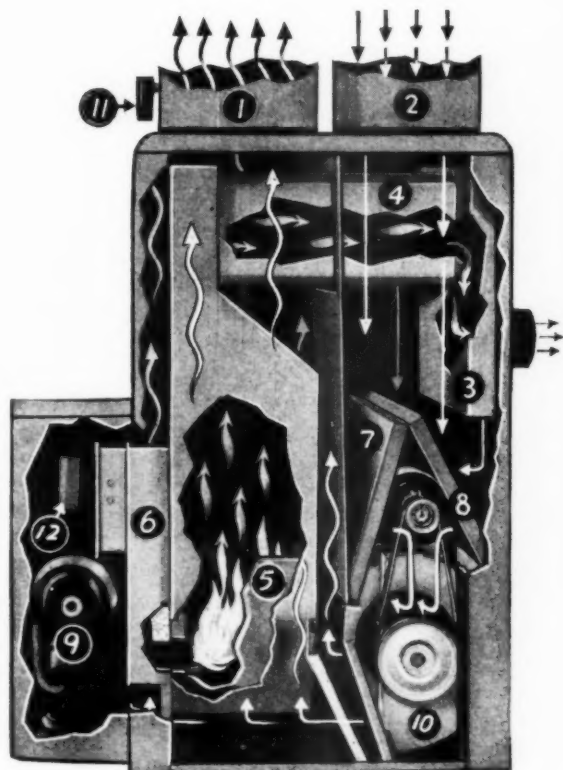
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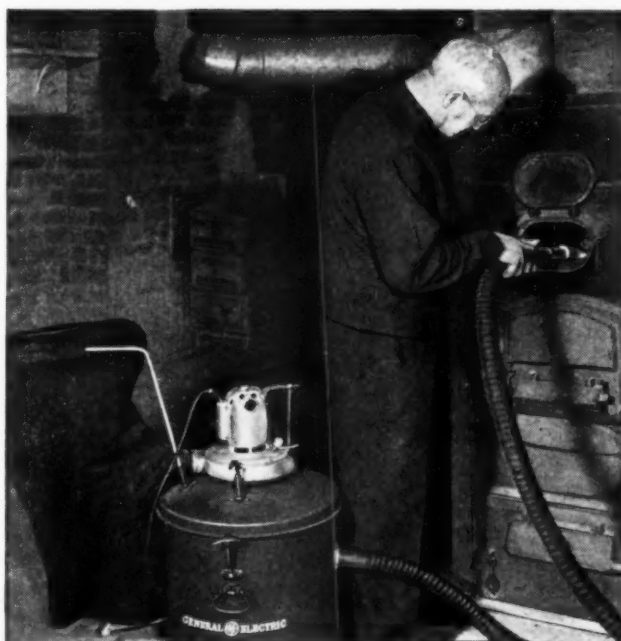
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is very much concerned over the prospect created by the Russian "Containment" plan. He constantly urges drastic reduction of the number of public employees. Since the 48 states are in better financial condition than the Federal Government, Byrd properly and naturally urges all grants and aids to States should be given hawk-like scrutiny, and those not absolutely essential should be withdrawn or deferred. Those which are local or State functions should be financed by the States or localities.

This Budget has an item of \$1,500,000,000 for such grants and aids, and the Government has spent \$34,000,000,000 for such purposes the past 12 years. He says: "The present taxes are oppressive to the degree that they will soon reach the point of diminishing returns. I know they are destroying the incentive for profit, which is the dynamo of our private enterprise (competitive) system. Unless we reduce expenditures now, three years after the war, the reduction will be more doubtful of achievement later. The greatest internal menace confronting America today is a public debt which is equivalent to more than twice as much as the assessed value of all property in America. The debt averages more than \$5,000,000,000 for each of the 48 states; and the actual value of the tangible property in a majority of the states of the Union is estimated as being less than \$5,000,000,000. The cure is to reduce the number of Federal employees; require Government corporations to finance out of their existing assets at least \$1,000,000,000 of the \$1,850,000,000 which is to be withdrawn by such corporations next

year from the Treasury. These two operations alone would save \$3,500,000,000. Another \$2,500,000,000 can be saved in appropriations for each and all Government agencies. We may have to do without things that are desirable, but not necessary. If the people, through Congress, continue to add to the burden of the Federal Government by asking the Government to do things which they should do for themselves, then of course these economies are not possible. We are beginning a bitter contest. We have to meet the opposition of highly organized and powerful minorities who are now beneficiaries of Federal spending. Federal bureaus are always active in opposition to any effort to reduce their power, funds, personnel; and many of these bureaus do not hesitate, and they will not hesitate today, as they have not hesitated in the past, to use the radio, the mails, and other means to disseminate propaganda at public expense, to oppose any retrenchment move that affects them. Right now decisions are being worked out here in Washington that will go far toward determining the kind of society and economy we are going to live in—whether people will be allowed to spend their own money or whether Government will spend it for them. During the thirties and the war period the Government intervened in one area after another in our economic life. The present big budget assumes the continuance of that philosophy. With it goes a tax system so onerous that it becomes, in effect, the instrument of socialization by which wealth is redistributed, and by which those who rise above the crowd are cut back to the level of mediocrity."



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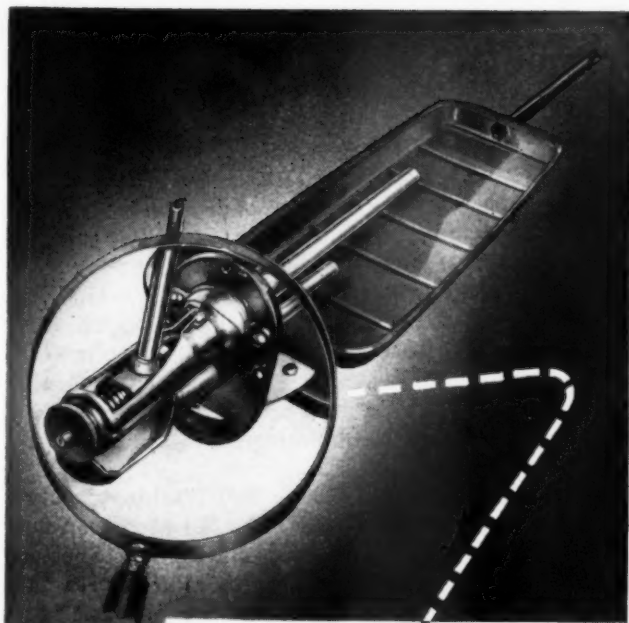
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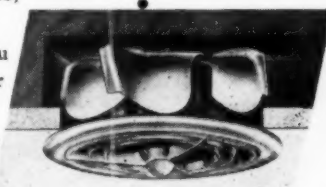


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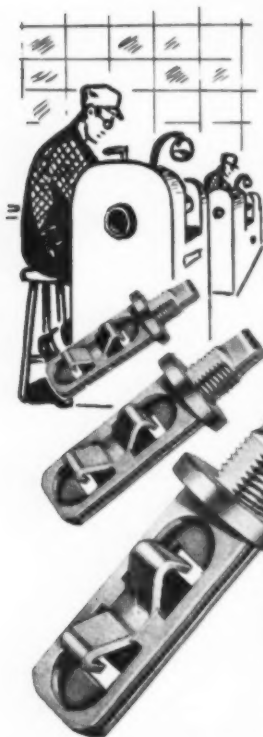
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Payroll Taxes

(Continued from Page 61)

Leaving to Attend School

Some states specifically disqualify from benefits an individual who leaves work to go to school, or who is regularly attending school. The disqualification continues as long as attendance at school lasts. (A few states don't grant benefits on the basis of wages earned while a student.)

If your ex-worker is a student, be sure to notify the agency if your state specifically disqualifies on this ground. If your state lacks this disqualification, notify the agency anyway. The person may be found *unavailable* for work because of the number or arrangement of his school hours—and therefore ineligible for benefits.

North Dakota, South Dakota and Washington specifically disqualify an employee who has been suspended as a disciplinary measure for misconduct connected with his work. In Alabama (which also reduces the amount of benefits payable) and Wisconsin, this specific disqualification also includes suspensions for other good cause connected with employment.

Michigan and North Carolina have no specific disqualification, but deny benefits on the theory that a disciplinary suspension is tantamount to a discharge for misconduct.

Iowa, Missouri and New Jersey pay benefits for unemployment during the suspension period, provided the worker meets the other eligibility requirements (he is unemployed, and able and willing to accept other work).

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FURNACE PIPE and FITTINGS

for Forced Air and Air Conditioning
Installations

- The quality of "AJAX" Fittings is fully guaranteed.
- Scientifically designed to reduce air friction.
- Double seamed to add strength, durability and air-tight construction.
- Made of high-grade full gauge sheets. No seconds used.
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- Our engineering department is at your service and will gladly help you solve your heating problems.

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THE CINCINNATI SHEET METAL & ROOFING CO.

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Consider the effect of a disciplinary suspension on your benefit charges if your state does not disqualify for this reason. If the worker performs no services and receives no wages, he may be eligible for full benefits for unemployment during this period. It would be preferable, from a merit rating standpoint, to discipline the worker by transferring him to a lower paying job for the disciplinary period, keeping in mind that the other work should pay more than his benefit amount to avoid a claim for partial benefits.

• • •

Bostrom— Apprentices

(Continued from Page 62)

doubt we have all found the aftermath of the war has left its mark of half-finished mechanics. Our industry cannot afford to absorb such large numbers of unqualified workmen. For the most part they are full members of the union and now on our hands. We cannot afford to deliberately make more of the same kind by choosing our apprentices without being reasonably sure we have good future mechanics.

The day is at hand when a journeyman must meet all the demands made of him or he falls in the discard. It is his duty, if classified as a journeyman, to have the skills and knowledge required for the craft or he should prepare himself to meet these demands. The day has passed when he can be classed as an erection

COMFORT is your business



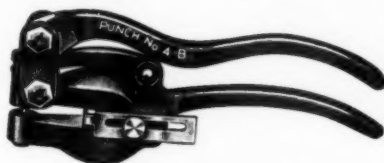
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For homes, schools, churches and commercial or industrial buildings, where controlled circulation of air is essential the year around . . . a Brundage Blower Filter Package Unit will do the job better.

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This punch is accepted by leading contractors and dealers as a real time-saver in the shop and on the job. Men who use it every day know it can't be beat for clean, fast punching. Has a capacity of 1/4" through 16 ga., weight 3 pounds, 8 1/2" in length, depth of throat, 2". Complete tool includes three punches and three dies of specified sizes with die adjusting key.



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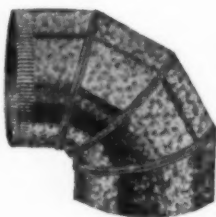
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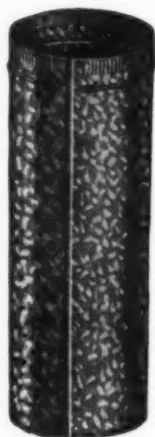
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man, a brake man or a good man at soldering; he must qualify as an all around sheet metal worker, lay out his own patterns and be able to do other similar work required of him. This type of man can only be made by well chosen apprentices who are given an intelligent eight thousand hour course of intensive training. Our trade is now begging for good mechanics.

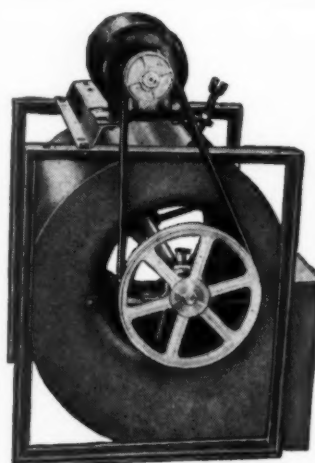
We can no longer depend on getting our finished mechanics from Europe as we did fifteen years ago, but must put in a determined effort to get machinery in motion for training apt young men for the industry. A well developed plan is now available for the asking from the National Sheet Metal Contractors Association. It pays to learn a trade.

• • •

Mirabile— Oil Heating

(Continued from Page 72)

quired to build the chamber. The number listed in the 10th Column can be split brick ($1\frac{1}{4} \times 4\frac{1}{2} \times 9$ " brick). These can be purchased or cut with a hand or hack saw on the job by the chamber man. There are many cases where split brick are necessary to insure the required distance between the floor and the nozzle. On furnaces with low ashpit door openings, the use of split brick permits $1\frac{1}{4}$ " additional space that would not be available with the standard $2\frac{1}{2}$ " thick brick.



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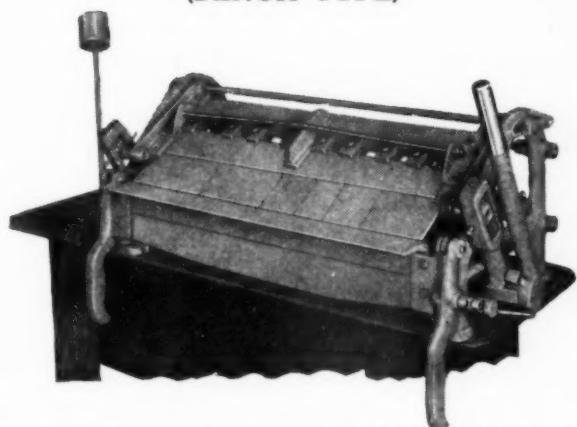
MASSACHUSETTS . .

By changing the position of the oil cup, the four popular discharges (lower horizontal, upper horizontal, down-blast and up-blast) can be obtained. Sizes 7 to $16\frac{1}{2}$ inches wheel diameter.

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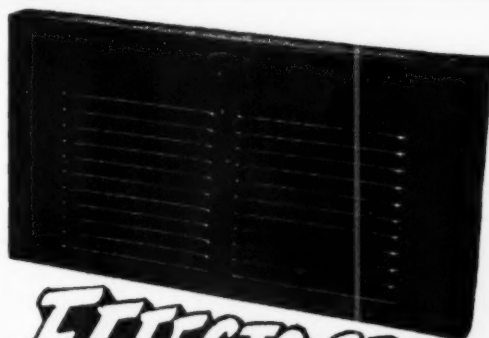
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We will ship
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NO Spring housecleaning job is complete with a dirty furnace in the basement. Now that "the heat is off", sell furnace cleaning to your town. If you can get new grates, parts, plants sell them too, but you can make good money on cleanings alone and you can get *immediate delivery* on a Super Red Streak Furnace Cleaner. Chimney cleaning equipment (from the basement not the roof) is standard equipment.

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No. 16 ROLLER BEARING LEVER BENCH PUNCH

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Throat Depth— $3\frac{1}{2}$ "
Punches & Dies— $\frac{1}{8}$ " thru $9/16$ "
by $1/64$ " variation.



NO. 17 ROLLER BEARING LEVER BENCH PUNCH

Capacity $\frac{1}{4}$ " thru $\frac{1}{4}$ "
Throat Depth— $6\frac{1}{2}$ "

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thru $9/16$ " by $1/64$ " variation.

Capacity
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Weight — 18 Lbs.
Punches & Dies
 $\frac{1}{8}$ " Thru $11/16$ "
by $1/32$ " Variation

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Made to Your Specific SPECIFICATIONS

Made to your specific specifications—accurately rolled in every dimension for all fan installations. Also used for reinforcing tanks, smoke stacks, and thousands of other uses.

Channels, flat bars, tees, special shapes, and all types of sheet metal fabricating to order.

Write for standard sizes and discounts.

National Metal Fabricators

2136 So. Sawyer Avenue Chicago, 23, Illinois

Column No. 11: These bricks are used to fill the corners to produce wing walls (Fig. 2-e). Sufficient bricks are included in this figure to cover normal breakage and to build an overhang (also called "corbel") (Fig. 2-b and d). On installations above 2.5 GPH use the stepped overhang shown in Fig. 2-d.

The number of bricks listed are based on $2\frac{1}{2}$ " thick chamber walls. However, if space permits $4\frac{1}{2}$ " walls will do a better insulating job. The space available on most warm air furnaces is such that the $2\frac{1}{2}$ " brick will be the thickness used due to the narrow space at the grate line. In fact, in some instances, the top row of bricks have to be cut less than $2\frac{1}{2}$ " to fit around grate lugs projections. This is done to insure sufficient combustion chamber volume to properly fire the furnace at the necessary firing rate.

Column No. 13 lists the red brick necessary to build the front wall. These are usually Kiln seconds or used red brick.

The 14th Column lists the floor area of the rectangular chamber. The installation of wing walls will cut down the floor area available and make the chamber smaller. This has been taken into consideration in computing the chamber sizes.

The Points to remember are:

1. The chamber must be built to conform with the flame characteristics of the burner being installed.
2. The chamber walls should be as smooth as possible without portions of the bricks or refractory cement at the joints projecting into the chamber in an irregular fashion.

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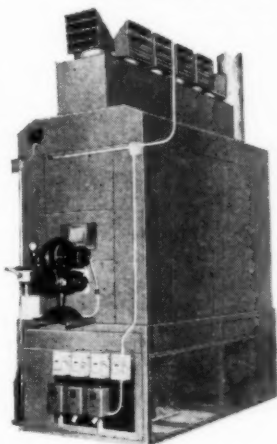
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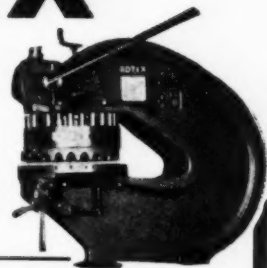
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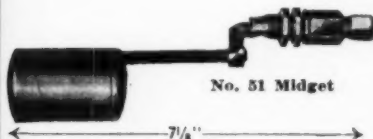
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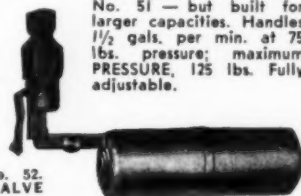
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3. The chamber must be air-tight. No air should enter the furnace or combustion zone other than that furnished by the oil burner. This does not apply to jobs requiring secondary air.

4. Follow the dimensions given in the data on chamber sizes. Maintain the nozzle height specified. If the nozzle is too low, excess air will be required to clean up the fire. This is due to oil particles striking the floor. Carbon and smoke may form and service men unconsciously add excess air to the flame to clean up this condition. Excess air over the necessary air requirements means inefficiency.

5. Use as little refractory cement between the brick joints as you possibly can. Remember that in thick cement joints, the refractory cement will burn out. When you use about 1/16" of cement and rub the brick into place, you squeeze the excess refractory cement out between the joints. Then with a trowel pick up the excess cement and smooth the joint. This thin layer of cement between brick will later fuse the bricks together at the joints. This makes for a solid, strong combustion chamber.

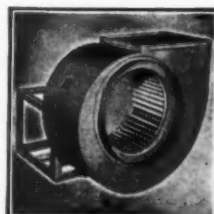
6. Insulate the combustion chamber thoroughly so as to keep the ashpit as cool as possible. This will prevent reverse circulation in the return air ducts.

7. The burner air tube must not touch any portion of the furnace. This will minimize the possibility of transmission of any burner mechanical noise.

8. Do not cover the inside surface of the insulating brick combustion chamber with a refractory cement coating.

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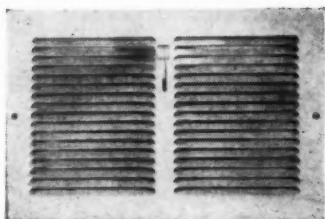
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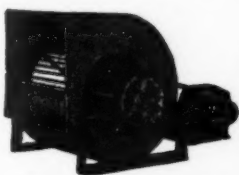
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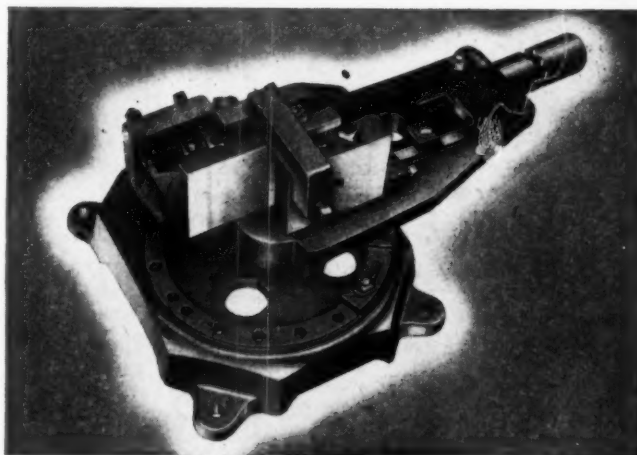
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10. Assuming that the furnace sections have been resealed, seal the clean-out doors and insulate the fire door.

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12. The flame must not strike any portion of the chamber or furnace walls. The flame must float and be evenly distributed in the combustion chamber.

• • •

Zideck— Roll Delivery

(Continued from Page 88)

the shop returning the cast, light-weight discs after it has used up the material. This reel undoubtedly would solve the problem of handling the material in the shop in that it can be easily rolled over the floor and into the holder, even such a holder as shown in the photo, with the frontal tube made removable for insertion of the coil. The "lifting" arrangements shown in the holder in Fig. 3, for elevating the reel above the base

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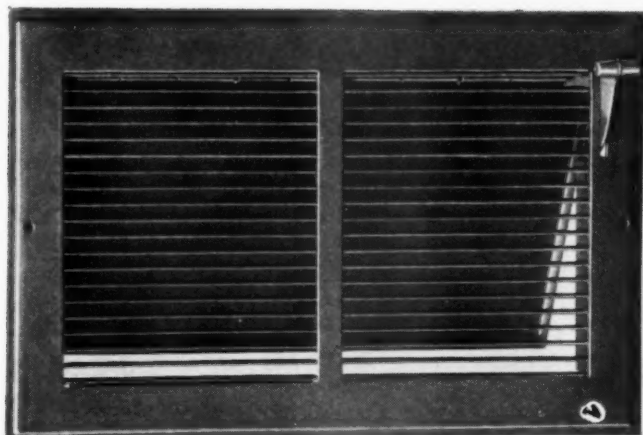
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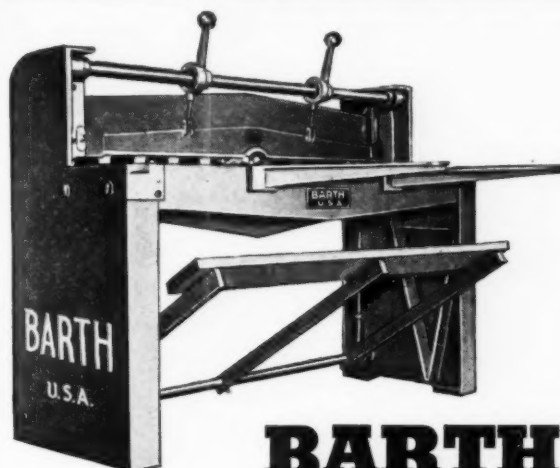
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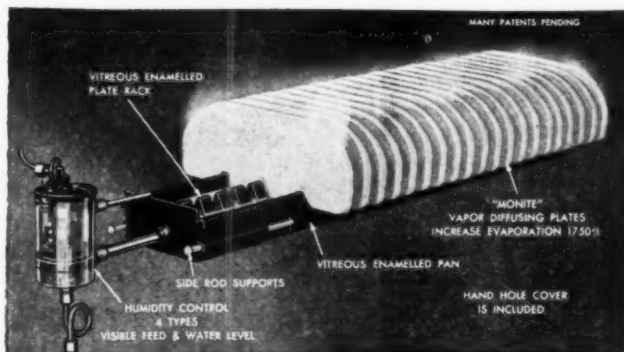
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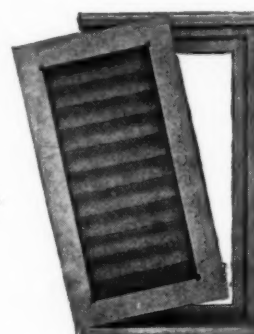
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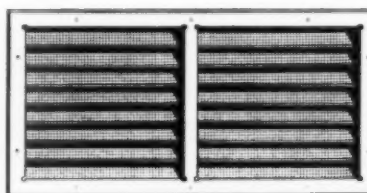
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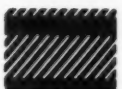
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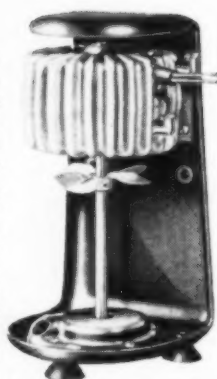
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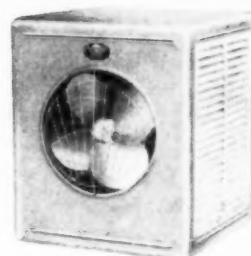
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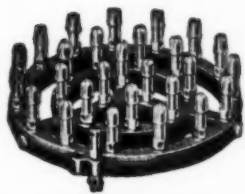
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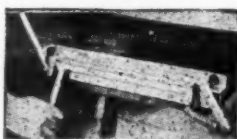
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will break and the sheet will flatten. The diagram marked Fig. 5 of the drawings shows how the unrolling sheet, if it is wavy, can be passed over a diagonally positioned (wood or soft metal) cylinder or block, (the latter if the propelling of the sheet is done by power), and thus effectuate the breaking of the waves simultaneously with the unrolling of the material for shearing. This contrivance, as of (a) in Fig. 5, can be incorporated in the shop-constructed reel holder shown in Fig. 3, by positioning the cylinders shown somewhat diagonally from the edge of the sheet, so that the sheet passes through the cylinders on a different angle than 90 degrees from its edge. The diagonal need not be too pronounced. If the holder is constructed for accommodating all sheet widths up

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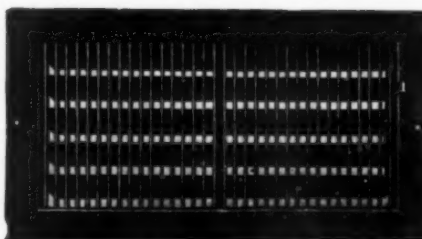
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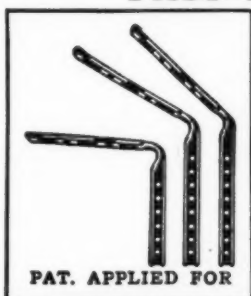
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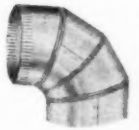
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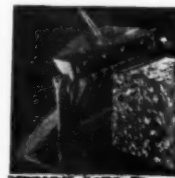
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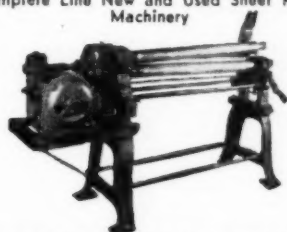


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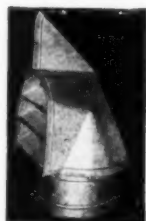


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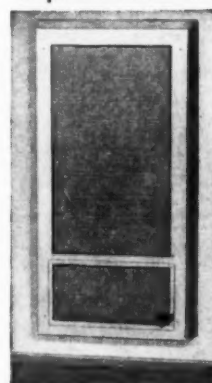
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